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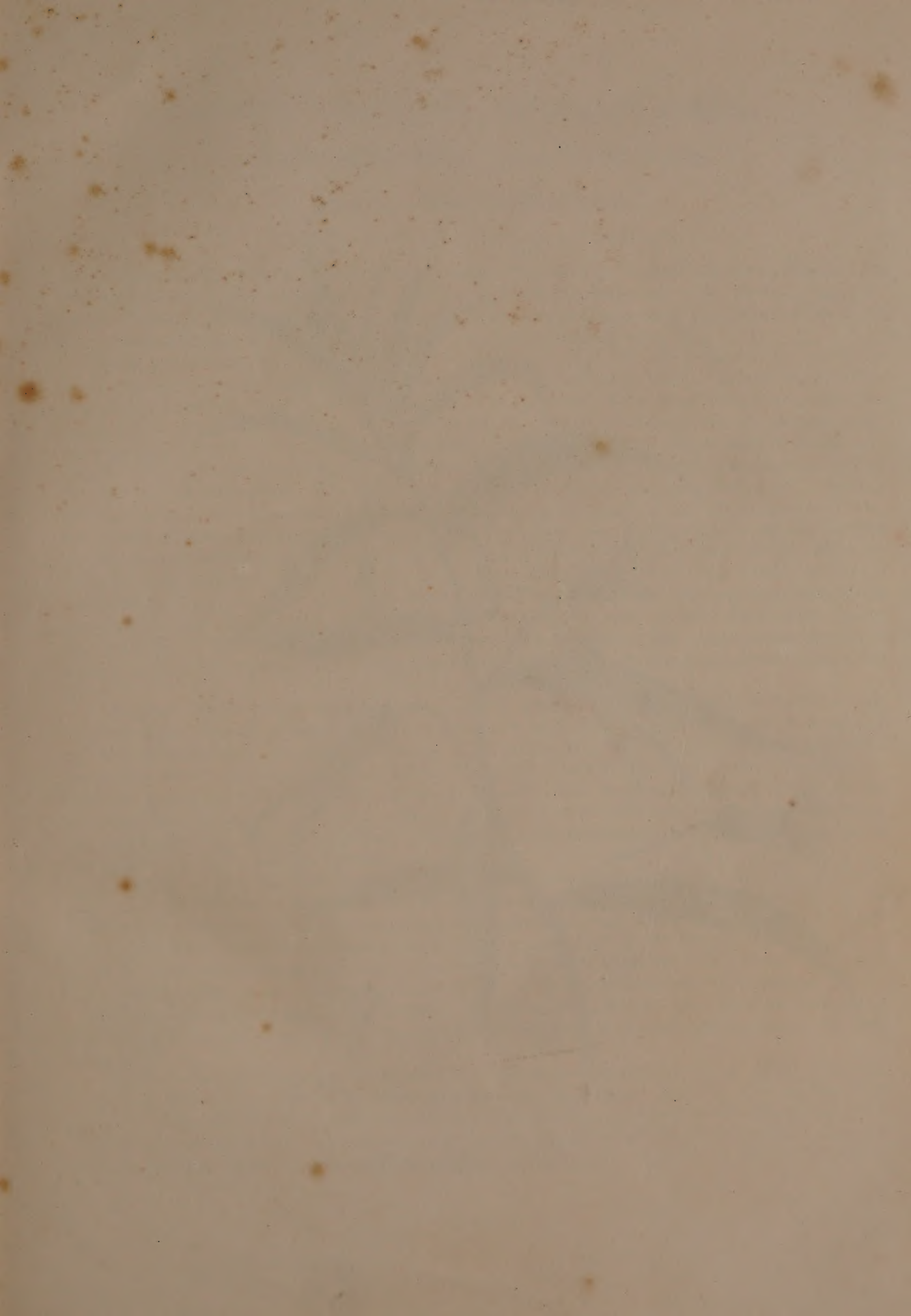
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Lobelia cavanillesii?

LOBELIA CAVANILLESII.—CAVANILLE'S LOBELIA.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, LOBELIACEÆ.

CALYX 5-lobed; tube obconical, ovoid or hemispherical. Corolla split longitudinally above, bilabiate, the tube cylindrical or funnel-shaped, straight; the upper lip generally smaller and erect, the lower generally spreading broader, 3-cleft or rarely 3-toothed. Anthers, the two lower, or rarely the whole, bearded at the top. Ovarium inferior, or half superior, or (even in species much allied) nearly free.

Stem, (4 feet high) erect, but slender and lax, glabrous, of deep red-purple, marked by prominent scars where the leaves had fallen, branched below, hardly above, somewhat woody. Leaves (3-4½ inches long) narrow lanceolate, acutely serrulate, spreading wide, glabrous, darker above than below, where the strong middle rib and reticulated veins are very prominent. Peduncles axillary, solitary, filiform, wiry, glabrous, purple, about as long as the leaves, ebracteate, spreading wide, or having a segmoid flexure outwards. Calyx green, purplish along the ribs, undulate, glabrous, 5-cleft, segments ovato-linear, as long as the tube which is campanulate. Corolla glabrous, bilabiate, inserted into the throat of the calyx, cleft along the whole of its upper side, where it is red, but yellow below and within; segments of the upper lip linear, acute, erect and twisted; lower lip oblong, slightly deflected, 3-dentate. Stamens scarcely shorter than the corolla; filaments at first yellow, afterwards reddish, inserted into the calyx at the base of the corolla, to which they adhere at their origin, monadelphous; anthers coherent along their whole extent, red on the outside before the corolla opens, afterwards leaden coloured, densely covered with long white hairs which arise from the lines between them, yellow on the inside and yielding yellow pollen. Pistil rather shorter than the stamens; style yellow, glabrous; stigma of two short blunt lobes, each, having a tuft of hairs as its base; germen half superior, conical at its apex, bilocular, placentæ central, and covered with many small ovules.

The genus *Lobelia*, though much reduced, may still require reform. *Lobelia Cavanillesii*, is among those in which a diversity of habit makes it desirable that a good technical character could be formed by which to separate them. They are in cultivation in this country as species of *Siphocampylus*, but with that genus, they neither agree in character nor habit. Decandolle considers tab. 139, *Lobelia laxiflora* of Humboldt and Kunth, and this, to be merely varieties of the same. The much smaller growth of this and the character which I have drawn of it, may, perhaps, keep them specifically distinct. In cultivation I have not seen them to vary so much as Decandolle thinks they do, but enough to make me little confident in this opinion. I believe they are both natives of Mexico.

Lobelia Cavanillesii was first described in this country by Sir W. J. Hooker in 1837, with a statement that it was imported into the Botanic Garden, Glasgow, from Professor Lehmann of Hamburgh. It was received at the Botanic Garden, Edinburgh, from Mr. Rollison, in 1838, is now frequent in collections; its elegance and beauty entitle it to general cultivation. It is probable that Mr. Cameron's observations regarding the culture of *Siphocampylus bicolor*, may in some degree be applicable to this plant.

Derivation of the name. *Lobelia* in honour of Lobel, physician to James the VI. of Scotland.

Flowers, yes—Flowers again! It is the season of their approach; therefore make ready for their coming, and listen to the author of the "*Flora Domestica*," who is eloquent in praise of their eloquence. She tells us that

Ovid is so fond of flowers, that, in the account of the Rape of Proserpine in his *Fasti*, he devotes several lines to the enumeration of the flowers gathered by her attendants. Mr. Gibbon is very angry with him for it. "Can it be believed," says he, "that the Rape of Proserpine should be described in two verses, when the enumeration of the flowers which she gathered in the garden of Eden had just filled sixteen?" But surely this loitering of the poet, over his meadows and crocuses, conveys a fit sense of the pleasure

enjoyed by Proserpine and her nymphs; a pleasure, too, for which they expressly came forth, and by the too great pursuit of which, the latter were separated from their mistress.

In our own time, we may instance the late Mr. Shelley. Of a strong and powerful intellect, his manners were gentle as a summer's evening: his tastes were pure and simple: it was his delight to ramble out into the fields and woods, where he would take his book, or sometimes his pen, and having employed some hours in study, and in speculations on his favourite theme—the advancement of human happiness, would return home with his hat wreathed with briony, or wild convolvulus: his hand filled with bunches of wild-flowers plucked from the hedges as he passed, and his eyes, indeed every feature, beaming with the benevolence of his heart. He loved to stroll in his garden, chatting with a friend, or accompanied by his Homer or his Bible (of both which he was a frequent reader:) but one of his chief enjoyments was in sailing, rowing, or floating in his little boat, upon the river: often he would lie down flat in the boat and read, with his face upwards to the sunshine. In this taste for the water he was too venturesome, or perhaps inconsiderate; for it was rather a thoughtlessness of danger, than a braving of it. In the end, as is well known it was fatal to him: never will his friends cease to feel, or to mourn his loss; though their mourning will be softened by the contemplation of his amiable nature, and by the memory of that gentle and spiritual countenance, “which seemed not like an inhabitant of the earth” while it was on it.

Among the lovers of flowers, it is a pleasure to be able to name the gallant and accomplished prince, Alexander Mavrocordato, one of the chief leaders of the Greeks in their glorious struggle for freedom. A botanical work, not long since published in Italy, is dedicated to him on account of his known fondness for the subject. To the same prince remarkable for exhibiting not only the gentle taste for flowers, but most of the characteristics, physical, intellectual, and moral, of his Hellenic ancestors, Mr. Shelley appropriately dedicated his “Hellas”—Among the Ancient Greeks this taste was very general, as may be gathered from many writers. In the following passage from the *Travels of Anacharsis*, a work in which several of these authorities are assembled: the author describes a visit to a friend who had retired to his country-house:—

“Having crossed a court-yard peopled with fowls, ducks, and other domestic birds, we visited the stable, the sheep-fold, and the flower-garden; where we saw in succession narcissuses, hyacinths, anemonies, irises, violets of different colours, roses of various kinds, and all sorts of odoriferous plants. You will not be surprised, said he, at the care I take in cultivating them; for you know that we adorn with them the temples, altars, and statues of our gods: that we crown our heads with them in our festivals, and holy ceremonies; that we scatter them upon our tables, and our beds; that we even consider the kinds of flowers most agreeable to our divinities. Besides, an agriculturist should not neglect small profits; whenever I send to the market of Athens, wood, provision, or fruit, I add some baskets of flowers, and they are seized instantly.”

In another part of the same work, the author describes a marriage ceremony in the Island of Delos, in which flowers, shrubs, and trees make a conspicuous figure. He tells us that the inhabitants of the island assembled at day-break, crowned with flowers; that flowers were strewn in the path of the bride and bridegroom: the house was garlanded with them; singers and dancers appeared, crowned with oak, myrtle, and hawthorns; the bride and bridegroom were crowned with poppies; and upon their approach to the temple a priest received them at the entrance, presenting to each a branch of ivy,—a symbol of the tie which was to unite them for ever.

The modern Greek word for “to be married,” is literally “to be crowned,” and the placing a chaplet of flowers on the bride's head is still the principal rite of the marriage ceremony in the Greek Church, not only in the Levant, but in Russia and elsewhere.

It was not in their sports only that the Greeks were so lavish of their flowers: they crowned the dead with them; and the mourners wore them in funeral ceremonies. Flowers seem to have been to this tasteful people a sort of poetic language, whereby they expressed the intensity of feelings to which they found common language inadequate. Thus we find that their grief, and their joy, their religion, and their sports, their gratitude, admiration, and love, were alike expressed by flowers.



Rhododendron chrysanthum.

RHODODENDRON CHRYSANTHUM.—GOLDEN-FLOWERED RHODODENDRON.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ERICEÆ.—THE HEATH TRIBE.

Figs. (a and b) represent the capsule and its valves; (c) a section of the same to show the cells.

THIS beautiful shrub is a native of the mountains of Siberia, Kamtschatka, and Behring's Island, flowering in June and July, and ripening its fruit in September. It was introduced by Mr. Joseph Bush, in 1796, into our gardens, where it flowers, though rarely, in the middle of summer. In its native climes, it grows not only on the mountain tops, but on the banks of rivers.

The stem in alpine situations seldom exceeds a foot in height; in lower ground it grows to a foot and a half, sending off numerous decumbent spreading branches, having their ends emerging from the moss, and being covered with a brown bark. The leaves are terminal, few, ovate, oblong, of a coriaceous texture and attenuated towards the footstalk; the upper ones are reticulated, rugged, and of a deep green colour; the under pale or sub-ferruginous, very smooth, having the margin entire and bent inward. The flowers are large, yellow, and placed alternately at the ends of the branches on very long peduncles, forming sertula or simple umbels. They are usually six or fewer, but sometimes about ten, erect and hairy. The calyx is inferior, persistent, and divided into five deep teeth; the corolla is pentasymptalous, nearly wheel-shaped, and divided into five rounded, nearly equal, spreading segments, the three upper ones being only a little larger than the other two, striated towards the tube, with livid dots; the lower ones unspotted. The stamens are ten, equal, thread-shaped, declining, with incumbent, oblong anthers. The germen is pentagonal, bearing a long slender style, and terminated by a 5-lobed stigma. The testa adheres firmly to the nucleus; the albumen is fleshy, the embryo cylindrical, in the axis of the albumen, and the radicle opposite the hilum. The capsule is ovate, somewhat angular, slightly curved, subtomentose, and divided into five or ten cells, which contain many small, grey, irregular seeds like saw-dust.

Professor Pallas was the discoverer of this plant during his tour through Siberia; and from his splendid work, we learn that the inhabitants of Siberia call the shrub schéi or tea; and drink a weak infusion of it as a refreshing beverage, in the same way as we do that of the Chinese plant.

It appears from Pallas' account, that the Cossacks gather its leaves in September, when the capsules are ripe; but it is then less bitter, and the whole plant is less flourishing than when in flower; at which time he recommends it to be obtained for medicinal use.

QUALITIES.—The leaves smell, when fresh, something like rhubarb; when dried they are inodorous, but have an austere, bitterish taste, slightly resembling our common oak leaf. The decoction has a disagreeable odour, and a rough, bitter, acrid taste.

MEDICAL PROPERTIES AND USES.—This plant was first used as a narcotic and astringent application for hæmorrhoidal fluxes; but it was not till Gmelin and Steller had lauded its virtues, that it excited the notice of the medical world. It appears that the Siberians, on the banks of the river Lena, when overcome by fatigue and cold, apply a decoction of its leaves to their limbs, to relieve pain and induce sleep. They also exhibit it for rheumatic and other painful affections of the muscles and joints, in the following manner: they take about two drachms of the dried shrub, stalks, and leaves, which, with nine or ten ounces of boiling water, they put into an earthen pot; lute on the head, and place it in an oven during the night. This infusion, *for it is not allowed to boil*, is drank the next morning for a dose. It occasions heat, together with a degree of intoxication, resembling the effects of spirituous liquors, and a singular kind of uneasy sensation in the limbs affected, accompanied by creeping sensations, which are likewise confined to the diseased parts. The patient is not permitted to quench the thirst which the medicine occasions; as fluids, particularly cold water, produce vomiting, whereby the power of the specific is lessened. In a few hours, all disagreeable effects disappear, commonly with two or three alvine evacuations. The patient then finds himself greatly

relieved of his disorder, and has seldom occasion to repeat the medicine above two or three times to complete a cure.

From experiments which have been instituted in this country, the yellow *Rhododendron* appears to exert a stimulant, and diaphoretic effect; and as far as our experience goes, it supports the correctness of Dr. Home's remarks, who states that it has a power on the heart, whereby arterial action is often much diminished. In one case he mentions that the pulse was reduced to thirty-eight beats, although immediately after its administration excitement was brought on, which was followed by a proportionate diminution in the arterial action. Pallas relates in his travels, that it is a common and successful remedy among some of the Tartar tribes in gout, and other painful disorders. They drink till it brings on some degree of vertigo, and symptoms of intoxication, which effects are generally accompanied by a tingling sensation in the parts affected, and an abatement of pain. These effects were also noticed by Koelpin, a friend of Professor Pallas, who not only speaks of its efficacy on himself, but in a tract, written in German and published at Berlin, extols it for its virtues in relieving gout and rheumatism.

Sometimes it excites head-ache, nausea, vomiting, delirium, and other unpleasant symptoms. Capriolus, a companion of Steller, having eaten ten leaves, soon after began to stagger, toss his head about, and to reel. After a short time, he fell on his knees, in vain attempting to rise; and although milk was copiously administered to him, he became overpowered with sleep for an hour and a quarter, during which time he started continually, and appeared terrified. When he awoke he appeared as cheerful as before, and it failed afterwards to produce the same effects. After this, the servants of Steller were constantly taking small quantities of it, on account of its pleasant intoxicating effects.

When we administer it, we put half an ounce of its leaves in twelve ounces of water, and allow them to *simmer only*, for four hours. Of the strained liquor, a quarter may be given to an adult every four hours; who, during its administration, must remain in bed, and its effects should be closely watched. The leaves of a different species, probably the *R. Caucasicum*, have been, for several years, sold by druggists for this plant; but Mr. Butler, of Covent Garden, has obtained a considerable quantity of the genuine drug from Siberia; and in those constitutions with which colchicum disagrees, we venture to recommend it as a very efficacious remedy.

When fruits, and herbs, and flowers are decayed and perished, they are continually succeeded by new productions; and this governing power of the Deity is only His creating power constantly repeated. So it is with respect to the races of animated beings. What an amazing structure or parts, fitted to strain the various particles that are imbibed; which can admit and percolate molecules of such various figures and sizes! Out of the same common earth what variety of beings!—a variety of which no human capacity can venture the calculation! and each differing from the rest in taste, color, smell, and every other property! How powerful must that art be, which makes the flesh of the various species of animals differ in all sensible qualities, and yet be formed by the separation of parts of the same common food! In all this is the Creator every where present, and every where active: it is He who clothes the fields with green, and raises the trees of the forest; who brings up the lowing herds and bleating flocks; who guides the fish of the sea, wings the inhabitants of the air, and directs the meanest insect and reptile of the earth. He forms their bodies incomparable in their kind, and furnishes them with instincts still more admirable. Here is eternally living force, and omnipotent intelligence.



Cymbidium pendulum.

CYMBIDIUM PENDULUM, VAR. BREVILABRE.

SHORT-LIPPED THICK-LEAVED CYMBIDIUM.*

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDACEÆ.—THE ORCHIS TRIBE.

As far as our experience goes, the ordinary variations to which Orchidaceæ are subject, are in all respects analogous to what is met with in other plants, and as is exemplified by the plant before us from Singapore, in which, while the lip becomes shorter, broader, and with a much blunter middle lobe, every thing else remains so exactly the same, that nobody can entertain a doubt about the specific identity of the plant with *Cymbidium pendulum*. The vertical plates of the lip, in particular, are quite unchanged, shewing, as we find it always shewn, that the elevations and processes of the surface of the lip are of the utmost importance in considering the limits of species.

The variations that experience tells us occur in the structure of the same species of tropical Orchidaceæ are principally in colour and size, just in fact as happens in those of Europe. Our common wild Orchises have purple or white flowers indifferently, and in some specimens they are much larger than in others, as is more particularly shewn by *Orchis latifolia*. Just so with the epiphytes. The flowers of *Catasetum tridentatum*, for instance, are spotted or quite green, and much larger in some varieties than in others. The well known *Oncidia ornithorhynchum* and *ampliatum* exhibit great differences in the size and depth of colour of their flowers; so do *Lycaste Skinneri* and *Cattleya Forbesii*; indeed, if one can judge from Mr. Hartweg's collection, it is very common for species found on the west of the Cordilleras to have much smaller flowers than when they occur on the east side. As to differences in form again, the greater or less breadth of the petals and the lobes of the lip is very uncertain in *orchis militaris* and its allies; and in the same way *Catasetum tridentatum*, *Cyrtorchilum maculatum*, and other epiphytes differ among themselves. But so far as is yet known, there is nothing peculiar in the tendency to variation among tropical Orchidaceæ, beyond what we find in all other plants, with the exception, of the masquerading species of *Catasetum* and *Cynoches*.

It should be grown in turfy heath-mould, of rather closer texture than that commonly used for Orchidaceous plants. The pot should be well drained, in order that all superfluous water may pass off freely, otherwise the roots will perish. Like some other species of the genus, this requires an ample supply of water at all times; and the atmosphere to be kept as moist as possible, especially during the growing season. To prevent the leaves from being scorched, the house should be slightly shaded in sunny weather. In summer the temperature should never be allowed to rise much above 80° by day, nor to fall below 68° at night; but in winter it should never be raised higher than 64° by artificial means.

This morning as we sat at breakfast, thinking, says a popular writer, with our eyes fixed on a set of the British Poets, which stand us instead of a prospect, there came by the window, from a child's voice, a cry of "Wall-flowers." There had just been a shower; sunshine had followed it; and the rain, the sun, the boy's voice, and the flowers, came all so prettily together upon the subject we were thinking of, that in taking one of his roots, we could not help fancying we had received a present from Nature herself,—with a penny for the bearer. There were thirty lumps of buds on this penny root; their beauty was yet to come; but the promise was there,—the new life,—the Spring,—and the rain-drops were on them, as if the sweet goddess had dipped her hand in some fountain, and sprinkled them for us, by way of message; as who should say, "April and I are coming."

What a beautiful word is *spring*! At least one fancies so, knowing the meaning of it, and being used to identify it with so many pleasant things. An Italian might find it harsh; and object to the *Sp* and the terminating consonant; but if he were a proper Italian, a man of fancy, the worthy countryman of Petrarch and Ariosto, we could convince him, that the word was an excellent good word, crammed as full of beauty as a bud,—and that *S* had the whistling of the brooks in it, *p* and *r* the force and roughness of what-soever is animated and picturesque, *ing* the singing of the birds, and the whole word the suddenness and salience of all that is lively,—Spring, Spring-time, a Spring-green; a Spring of water—to Spring—Springal, a word for a young man, in old (that is, ever new) English poetry, which with many other words has gone out, because the youthfulness of our hearts has gone out,—to come back with better times.

Quit the carking cares of the world,—come with me for a day into the country—and thou wilt be the

* We are indebted to Dr. Lindley's charming work, the Botanical Register, for the figure and description.

better for it all the year after. We will indulge in sweet thoughts and solacing interchanges of kindly feeling.—

And now we are in a quiet, rural spot, far from the busy hum of men,

———so that a whispering blade
Of grass, a wilful gnat, a bee, bustling
Down in the blue-bells, or a wren light rustling
Among the leaves and twigs, might all be heard.

No sound strikes upon our ear but the grateful music of nature. "There is a spirit of youth in every thing."—

Through wood, and stream, and hill, and field, and ocean
A quickening life from the earth's heart has burst,
As it has ever done,

"Fresh leaves and flowers deck the dead reason's bier;" and ah!—there is one of them—the primrose. See how it peeps from yon southern mossy bank, pale and motionless—"not wagging its sweet head,"—so hushed and still is the atmosphere, that there is not even a playful breeze abroad "to fondle the flowers! in its soft embrace." This darling flower, this child of spring, "that comes before the swallow dares, and takes the winds of March with beauty," is my peculiar favorite. I never meet with a tuft of them for the first time, but there goes to my heart an intense feeling of their calm and innocent loveliness. They are to me heralds of young and fresh-bursting life, dear pledges of the renewed existence of nature. They tell me of the vernal joys that are at hand, awaiting me. This feeling I experience at every returning season: it is connected with many an early association. I delight to follow and trace it far back, into the years of childhood,

And find no end, in wandering mazes lost.

I can discover nothing but "the man's thoughts dark within the infant's brain." How mysterious are the operations of the mind at that budding period; To what point of our infancy are we to refer the first dim shadowy associations? How can we trace the early dawning of

———that primal sympathy,
Which, having been, must ever be,

and which makes the same poet exclaim, in a line full of deep and philosophic thought,

"The child is father of the man?"

And then, again, by what insensible gradations do we progress to the laughing thoughtlessness of boyhood! Oh! how I love to revert to those days of careless gaiety and unrestrained freedom! Life then had no stern realities. Every object was clothed in the fairy hues of imagination. I lived and moved as in a dream; and hope was "as broad and easing as the general air." Many of my happiest moments are derived from the golden recollections intertwined with the very heart-strings of my being,—old dwellers in my bosom, that ever linger with me,

And, of the past, are all that cannot pass away!

Time and care make sad havoc with these aerial enjoyments.

Whither is fled the visionary gleam!
Where is it now, the glory and the dream!

Youth invests all which it sees and desires, with the rainbow tints of fancy.

Yet let us press on joyfully in our course. "There be delights, there be recreations, and jolly pastimes, that will fetch the day about from sun to sun, and rock the tedious year as in a delightful dream."

A thousand pure pleasures remain to us. Foremost, and the most soothing among them, is natural scenery. I lately met with a passage, written some years ago, in a periodical work, which finely and feelingly expresses all that I would say on this subject. The author, writing from a lonely spot in Switzerland, describes it, and thus proceeds:—

"During those dreams of the soul, which our hopes and wishes create, and our reason is unable to destroy,—when we wish to retire from the loud and stirring world, and among the loveliness of some far-removed valley, to pass the days that fate may have assigned us,—where the mind endeavours to combine in one scene every beauteous image that memory can supply, or imagination picture,—it would be impossible to conceive the existence of a more lovely landscape. So sweet is this spot, that the very winds of heaven seem slowly and fondly to pass over it, and the little summer birds sing more cheerily amid its holy solitude. Since I have seen it, I have not been conscious of feeling any emotion allied to evil. Indeed, what could make the heart evil-disposed among such general peace and happiness? No mind can withstand the influence of fair and lovely scenery, and the calmness of a fine summer-evening, when there is nothing to prevent its sinking into the very furthest recesses of the heart. For myself, at least, I can say that I never walked with my face towards a fine setting sun, without feeling it to be, as our own most majestic poet has expressed it, 'a heavenly destiny.' Nothing tends so powerfully to extinguish all bad passions as the contemplation of the still majesty of nature."



Anthemis nobilis.

ANTHEMIS NOBILIS.—COMMON CHAMOMILE.

CLASS XIX. SYGENESIA.—ORDER II. POLYGAMIA-SUPERFLUA.

NATURAL ORDER, CORYMBIFERÆ.

Figs. (a) represents a floret of the radius; (b) a floret of the disc with the seed and chaffy scale; (c) the anthers spread; (d) a section of the receptacle.

CHAMOMILE is a well-known perennial plant, which grows wild in Cornwall, Surrey, and many other parts of Britain. We found it in great abundance on Wimbledon Common, Enfield Chase, and all the dry elevated heaths near London. It flowers in August and September.

The roots are perennial, jointed, and fibrous. The stems, in a wild state, are mostly trailing, a span or more in length, round, furrowed, foliaceous, and downy. The leaves are bipinnate, and of a pale green colour; the leaflets small, rather flat above, somewhat hairy, and generally divided into three pointed segments. The flowers are terminal, solitary, with a convex yellow disc, and numerous white, spreading, reflexed rays. The involucre is hemispherical, and composed of several closely imbricated downy scales, with thin membranous edges; the florets of the disc are numerous, yellow, perfect, tubular, with five equal spreading segments; those of the radius, usually about eighteen, white, ligulate, spreading, with three teeth; the filaments are five, very short, capillary, and have their anthers united into a cylindrical tube; the germen is obovate, supporting a slender style, and furnished with a bifid reflexed stigma. The seeds are ovate, compressed and slightly crowned. The receptacle is conical, surmounted by minute chaffy scales, one to each floret, perceptible even to the naked eye, but very conspicuous under a lens.

The generic name, *Anthemis* is supposed to be derived from *Ἀνθεω* *floreo*, having an abundance of flowers;—the English from *χαμαί*, and *μέλον*, an apple, hence the Latin "*chamomilla*," *quoniam odorem mali habeat*. (Plin. 1. 22. c. 21.)

QUALITIES AND CHEMICAL PROPERTIES.—The flower of this plant is collected before it is fully blown, and then dried. As the taste and odour reside in the tubular florets, which are largest in the single flowers, these are preferable to the double that are always sold in the shops—another instance of utility being sacrificed to appearance. Chamomiles have a bitter, aromatic, and slightly pungent taste, and a strong unpleasant odour. By distillation they yield a volatile oil, on which their virtues appear to depend; but in the preparation of the extract it is lost. Boiling also dissipates the oil. Both water and alcohol take up their active parts, which are the essential oil, resin, and a bitter principle.

All soluble preparations of iron, nitrate of silver, oxymuriate of mercury, acetate and sub-acetate of lead, solutions of isinglass, and infusion of yellow cinchona bark, are precipitated by the infusion, and therefore "*incompatibles*."

MEDICAL PROPERTIES AND USES.—Chamomile is a powerful tonic and stomachic, and inferior to no other, when properly administered. It is an excellent and popular remedy for a weakened state of the stomach, attended by the ordinary symptoms of indigestion, as heartburn, loss of appetite, flatulency, &c. In such affections, particularly if accompanied by a sluggish state of the intestinal canal, the cold infusion, made with half an ounce of the flowers to a pint of water, and combined with aromatics and alkalies, is grateful to the stomach: or, should hot water be employed, it must be allowed to stand on the flowers ten minutes only;—the time recommended in the London Pharmacopœia: unless, indeed, we wish to excite or encourage vomiting, when a tepid strong infusion will do both. Administered in substance, Chamomile has been successfully employed in intermittent fevers; but occasionally produces diarrhœa. Sir John Pringle states, that the antiseptic powers of the Chamomile are 120 times greater than those of sea-salt: and, externally, the flowers are used for fomentation: hot water, however, is nearly as efficacious. The infusion is

a useful vehicle for other more active remedies: and the extract, in doses of ten or fifteen grains, combined with myrrh and preparations of iron, affords a powerful and convenient tonic, in the form of pill. The dose of the powder is from ten grains to half a drachm; that of the infusion from one ounce to two ounces, two or three times a day.

OFF. PREP.—Decoctum Anthemidis nobilis. *L.E.*

We have already remarked, that the essential oil is dissipated by boiling.

Infusum Anthemidis. *L.E.*

Extractum Anthemidis. *L.E.*

Oleum Anthemidis. *L.*

Dr. Schall affirms that chamomile is not only an effectual preventive of nightmare, but the sole certain remedy for that complaint.

The Chamomile, says Mr. John Brown, is the PLANT PHYSICIAN. He says, not only that decoctions, or the leaves dried and powdered of the *Anthemis nobilis*, will destroy insects, but that nothing contributes so much to the health of a garden as a number of Chamomile plants dispersed through it. No green-house or hot-house should be without Chamomile in a green or in a dried state; either the stalks or flowers will answer. It is a singular fact, that if a plant is drooping and apparently dying, in nine cases out of ten, it will recover, if you place a plant of Chamomile near it.—Gardener's Magazine.

The *Marutaefetida*, formerly called *Anthemis Cotula*, Stinking Chamomile, or May-weed, *receptaculis conicis, paleis setaceis, fructibus nudis*, has been erroneously ranked by some writers on toxicology among the vegetable poisons. It is an indigenous annual, growing in waste grounds and amongst corn. The whole plant has a strong foetid odour, and where it abounds, is often found to blister the hands of those that gather it, which Sir William Hooker attributes to the minute glands sprinkled over its surface. It is never prescribed in present practice, nor are we aware of its having ever proved poisonous in this country. Dr. Barton states that, like the common Chamomile, a strong decoction, given in the dose of a teacupful, will produce copious vomiting and sweating. In America it is used by the vulgar, as a sudorific in chronic rheumatism. A weak infusion, taken to a moderate extent, nauseates the stomach, and is sometimes employed to promote the action of an emetic. It was formerly used internally in scrofula, and hysteria; and externally in fomentations.

Nature! to me, thou art more beautiful
In thy most simple forms, than all that man
Hath made, with all his genius, and his power
Of combination: for he cannot raise
One structure, pinnacled, or domed, or gemm'd,
By architectural rule, or cunning hand,
Like to the smallest plant, or flower, or leaf,
Which living hath a tongue, that doth discourse
Most eloquent of Him, the great Creator
Of all living things. Man's makings fail
To tell of aught but this, that he, the framer
Sought also to create, and fail'd, because
No life can he impart, or breath infuse,
To give inertness being.



Pistacia Lentiscus.

PISTACIA LENTISCUS.—MASTIC TREE.

CLASS XXII. DICECIA.—ORDER V. PENTANDRIA.

NATURAL ORDER, ANACARDIACEÆ.—THE CASHEW TRIBE.

Fig. (a) represents a female flower magnified; (b) male flowers; (c) back view of a female flower, shewing the five-cleft calyx.

THE Mastic-tree is a native of the south of Europe and the Levant, and appears by Evelyn's *Kalendarium Hortense* to have been cultivated in Britain so early as 1664. It is less hardy than the Chian turpentine-tree, requiring the shelter of a green-house; hence it never attains here any degree of perfection. In Italy it is very common, flowering in April, as well as in the island of Scio, where its resin, called mastic, is chiefly obtained, and where different varieties are consequently cultivated with care. It differs from every other known *Pistacia* in having no odd leaflet, as well as in its simply racemose inflorescence.

This tree, which seldom exceeds twelve feet in height, and eight or ten inches in diameter, is covered with a smooth brown bark, and towards the top sends off numerous branches. The leaves are abruptly pinnate, consisting of five or six opposite pairs of narrow ovate leaflets, of a dark green colour on the upper, and pale on the under side. They are smooth, pointed at each end, and tipped at the point with a minute curved spine; sessile or closely attached to the common footstalk, which is winged or furnished with a narrow foliaceous expansion on each side, running from one pair of leaflets to the other. The flowers appear in simple axillary racemes in April and May. In the *male* flowers, the calyx is divided into five minute ovate segments; the filaments are four or five in number, very short, and supporting large, brown, erect, quadrangular anthers. The *female*, like those of the male, have no corolla, and are placed upon a common peduncle in alternate order; the calyx consists of three small squamous segments; the germen is egg-shaped, larger than the calyx, and supports two or three styles, with reflexed clubbed stigmas. The fruit is an obovate, smooth, reddish drupe, containing a smooth nut.

In the island of Chios, the official mastic is obtained most abundantly, according to Tournefort, by making transverse incisions in the bark of the tree about the beginning of August, from which the resin exudes in drops, and hardening on the trees, or running down and concreting on the ground, is thence collected for use. The time chosen for making these incisions is the first of August, when the weather is very dry; during the following day the mastic begins to appear in drops, which continue to exude till the latter end of September. According to Olivier (*Travels in the Ottoman Empire*) mastic is gathered in twenty-one villages of the island of Scio; and the incisions, he says, are made from the 15th to the 20th of July, according to the Greek calendar. Cloths are frequently placed under the tree, so that the mastic which trickles from it may not be contaminated with earth and other impurities. By the regulations made in the island, the first gathering cannot take place before the 27th of August. It lasts eight successive days, after which fresh incisions are made in the trees till the 25th of September, and then the second gathering is made, which likewise lasts eight days. After this time the trees are cut no more, but the mastic which continues to run is collected till the 19th of November, on the Monday and Tuesday of every week. It is afterwards forbidden to gather this production, which in the twenty-one villages of Scio, amounts on an average to 50,000 *okes*, and even more: twenty-one thousand belong to the aga, who farms this commodity, and are delivered by the cultivators in payment of their personal impost. They are paid for the surplus at the rate of 50 *paras* per *oke*, (nearly 16 sous the pound,) and they are prohibited, under very severe penalties, from selling or disposing of it to any other than the aga who farms it. That of the best, and finest quality is sent to Constantinople, for the palace of the Sultan; that of the second quality is intended for Cairo. The merchants generally obtain a mixture of the second and third quality. The lentisc or mastic-tree is raised in various parts of Europe, particularly in Italy and Portugal, but no resin is said to issue from it in these climates.

QUALITIES AND CHEMICAL PROPERTIES.—Mastic, which is brought to us in yellowish semi-transparent brittle grains or tears, is nearly inodorous, except when rubbed or heated, when it exhales an agreeable odour. It is almost tasteless; and when chewed it is soft and tough, like wax, but soon becomes white, opaque, and brittle; hence it is frequently employed by surgeons for stopping carious teeth. In Turkey great quantities of it are chewed for sweetening the breath and strengthening the gums; and it is to this use of the resin as a masticatory, that it is supposed to owe its name. Its specific gravity is 1.074.

By digestion with alcohol it is separated into two portions; the one soluble in this fluid, and the other insoluble; the former composes about three-fourths of the whole, and is pure resin; the latter, in most of its properties, resembles caoutchouc. The nature of this insoluble portion was first discovered by Kind, an apothecary at Berlin, whose observations have since been confirmed by Mr. Matthews. Mr. Brande, however, has observed that when this insoluble substance is dried, it becomes brittle, in which respect it differs from caoutchouc. From these experiments, and those of Dr. Wollaston, there can be little doubt that it is a peculiar vegetable principle. Mastic is perfectly soluble in sulphuric ether, from which it is precipitated by alcohol in the form of a white curd. When distilled, either with water or alcohol, according to Dr. Thomson, no volatile oil is obtained from this substance. It should be chosen clear, of a pale yellow colour, and of an agreeable odour when heated or rubbed.

MEDICAL PROPERTIES AND USES.—Although the principal consumption of mastic is among varnish makers, it has been long introduced into medicine under the character of an astringent and diuretic in obstinate coughs, dysentery, and internal ulcerations; but it probably possesses no powers of any kind but what may be ascribed to its moderately stimulant effect upon the organs of secretion. By means of mucilage and syrup, mastic dissolved in alcohol, is rendered miscible with water, and supposed to possess the virtues of turpentine in an inferior degree. The Arabians regard it as astringent and tonic, and Avicenna speaks of its discutient qualities; he moreover says, “*Tussi et sanguinis rejectione prodest. Stomachum roborat et jecur.*” In pharmacy it is sometimes employed as an adjunct to pills, to render them less immediately soluble in the stomach, and consequently more progressive in their operation. The wood (*Lentisci lignum*) is received into the materia medica of some of the foreign pharmacopœias, and highly extolled in gouty, and dyspeptic affections. In the arts mastic is much used, in combination with lac, elemi, and other resins, in the composition of varnishes; and the jewellers mix it with turpentine, and ivory black, and place it under the diamond to add to its lustre. Virey, in his “*Histoire Naturelle des Médicaments*,” informs us, that from the kernels of the mastic-tree an oil may be obtained which is fit for table; and according to Desfontaines and Duhamel the *Pistacia atlantica*, and *P. chia* yield resins which resemble mastic.

Mr. Field says, in his *Chromatography*, a book most amusing to the general reader, as well as instructive to the artist, “It is true that other soft resins are sometimes substituted for that of mastic, and that very elaborate compounds of them have been recommended and celebrated, but none that possess any evident advantage over the simple solution of mastic in rectified oil of turpentine. Correggio and Parmigiano, according to Armenini, used a varnish of *common white resin* mixed with *naphtha*. Other old masters are said to have employed *mastic* and *sandarac* dissolved in *nut*, *poppy*, or *linseed oils*, and this seems evident from the difficulty of removing varnishes from very old pictures. Mastic varnish is easily prepared, by digesting in a bottle during a few hours, in a warm place, one part of the dry picked resin with two parts or more of the oil of turpentine. A sufficient quantity of this, cleared, varnish to gelatinize or set up either of the before-mentioned drying oils of linseed, constitutes the transparent *macgilp* of the painter, &c. If, instead of drying oil, the simple pure linseed oil be used with about an eighth of acetate or sugar of lead dissolved in water, or ground fine, we obtain variously the opaque mixture called *gumtion*.

This, the most celebrated production of the island of Scio, is considered of so much importance there, that the inhabitants of the villages that furnish it, had, when under their turkish masters, many peculiar privileges. They acknowledged no other chief than the *aga* or lord who farmed that production; they were exempt from contributing their labour gratuitously on public occasions, being obliged only to convey the mastic to the town, and to furnish beasts of burden to this *aga* when he travelled about the villages in order to collect it. “We had an opportunity,” says M. Olivier, “of seeing the *aga* on his tour, preceded by military music, followed by several *tchocadars*, and surrounded by a great number of villagers, eager to attend on him. Had we not been previously informed, we should much rather have taken him for a military commander than a simple farmer of taxes.”

The culture of the lentisk is simple, and attended with little trouble; it consists much more in cleansing than in turning the soil. The cultivators do not prune this tree, but, on the contrary, endeavour to prevent the stem from growing in a handsome form, as it has been found from experience that the lentisks which trail yield much more mastic than those the stems of which are straight and shooting.

It may readily be imagined that all the Greeks in the island of Scio, would gladly have become cultivators of the lentisk, by which they would gain exemption from the petty and harrassing tyranny to which others were constantly subjected; but while it was prohibited under the severest penalties to offer the mastic for sale to any but the *aga* who farmed it, the cultivation of the lentisk was forbidden out of the limits traced by the government.

DOSE.—The dose may be from gr. x. to ʒss. twice a day.



Malva odorata L.

MALVA ODORATA.—SWEET-SCENTED MALLOW.

CLASS XVIII. MONADELPHIA.—ORDER VI. POLYANDRIA.

NATURAL ORDER, MALVACEÆ.—THE MALLOW TRIBE.

STEM suffruticose, round, branched, from three to twelve feet high, covered more or less with a glandular pubescence. Leaves heart-shaped, pubescent, obtuse, from three to five lobed, lobes acutely notched, sometimes on the lateral branches the leaves are entire, *not lobed*, and only acutely dentate. Petioles short, varying from one third to one fifth the length of the leaves, and similarly pubescent. Stipules ovate, lanceolate. Flowers pink, solitary, issuing from the axils of the leaves. Peduncle shorter than the leaves, and covered with long hairs. Involucellum three-leaved, leaves ovate, obtuse, hairy, arranged alternately with the leaves of the calyx. Calyx pubescent, leafless, broadly ovate and longly acuminate. Petals five, obovate, longly unguiculate, unguis hairy, and forming a tube; margin of the lamina more or less irregular. Filaments numerous, smooth, adhering to the unguis of the petals, and of an indigo colour. Anthers kidney shaped, of a similar colour to the filament, dehiscing laterally, longitudinally. Pollen round, echinate, transparent in the centre. Styles about nine, longer than the filaments and anthers, and of a purple colour. Stigma linear, papillose.

POPULAR AND GEOGRAPHICAL NOTICE. Many of the plants composing the genus *Malva* are showy, handsome, and deserving of cultivation by the amateur, and from the delicacy of the petals, and the freeness of the flowering, there are perhaps but few more worthy of this distinction than the one now figured. In addition to its beauty, it gives out a delicious balsamic fragrance, scenting the whole house; this property, however, is not preserved in dried specimens. The genus *Malva* is pretty generally distributed over the whole world, but the greatest number of attractive species are to be found at the Cape of Good Hope, and South America. Two species are natives of this country.

INTRODUCTION; WHERE GROWN; CULTURE. This plant appears to be of recent introduction. It is not more difficult to treat than other of the suffruticose species, and it may be propagated by cuttings in the usual way. It will thrive in any good garden soil.

Gerarde supposes the Latin name of this genus to be derived from the Hebrew, in which tongue it is called *Malluach*, from its saltiness (*Melach*, salt,) because the Mallow grows in salt places, among rubbish, &c., where saltpetre abounds. "I am persuaded," says he, "that the Latin word *Malva* comes from the Chaldee name *Malluach*, the *ch* being left out for the good sound's sake; so that in the *Malua* we should pronounce the *u* as a vowel, *Malua*, which comes near to the English word Mallow."—*French*, mauve.—*Italian*, *Malva*.

We are informed that a tree of the Mallow kind furnishes food to the Egyptians, and the Chinese also use Mallows in their food.

Job speaks of them as being eaten in times of famine.

"For want and famine they were solitary: fleeing into the wilderness in former time desolate and waste:

"Who cut up mallows by the bushes, and juniper-roots for their meat."—*Job*, chap. xxx. verses 3, 4.

From the above passage we learn that the mallow was used for food by those nomadic tribes who have always pitched their tents in the desert in preference to dwelling in fixed habitations, where it would have been their duty to cultivate the earth in order to multiply the benefits of nature.

This plant was also eaten, boiled by the Greeks and Romans, and in salads, with lettuce and other vegetables.

Horace mentions it as one of his ordinary dishes:—

—————"me pascunt olivæ,
Me cichorea, levesque malvæ."

"Olives, succory, and light mallows are my food."

He commends them also as being very salutary:—

“*Malvæ salubres corpori.*”

It grows, naturally, by the rivulet's side, and is of easy culture. Its appearance is graceful and pleasing; and its rose-coloured flowers harmonize with its leaves and branches, the whole plant being covered with a silver-coloured silky down. It is equally agreeable to the sight as to the touch. Its flowers, its stalks, its leaves, and its roots, are all useful. We procure from them various juices, syrups, pastiles, and pastes, alike beneficial to health, and agreeable to the palate.

A kind of paste, called by the French name of *pâte de mauve*, was of late prepared from the root, which is thought to be efficacious in allaying the irritation produced by violent coughing; but at present the Mallow is omitted, that the composition may have a fine white colour; it is, therefore, now made only of the finest white gum-arabic, the white of eggs, sugar, and orange-flower water.

The Mallow was formerly planted, with some other flowers, the asphodel in particular, around the graves of departed friends. It was probably this circumstance which led to the following reflections, in the epitaph on Bion, by Mosehus:—

“Raise, raise the dirge, Muses of Sicily!
Alas! when mallows in the garden die,
Green parsley, or the crisp luxuriant dill,
They live again, and flower another year;
Put we, how great soe'er, or strong, or wise,
When once we die, sleep in the senseless earth,
A long, an endless, unawakeable sleep.”

HUNT'S FOLIAGE.

The common Mallow of this country must be familiar even to London readers; it is an amiable plant, generally to be found in spots neglected by mankind.

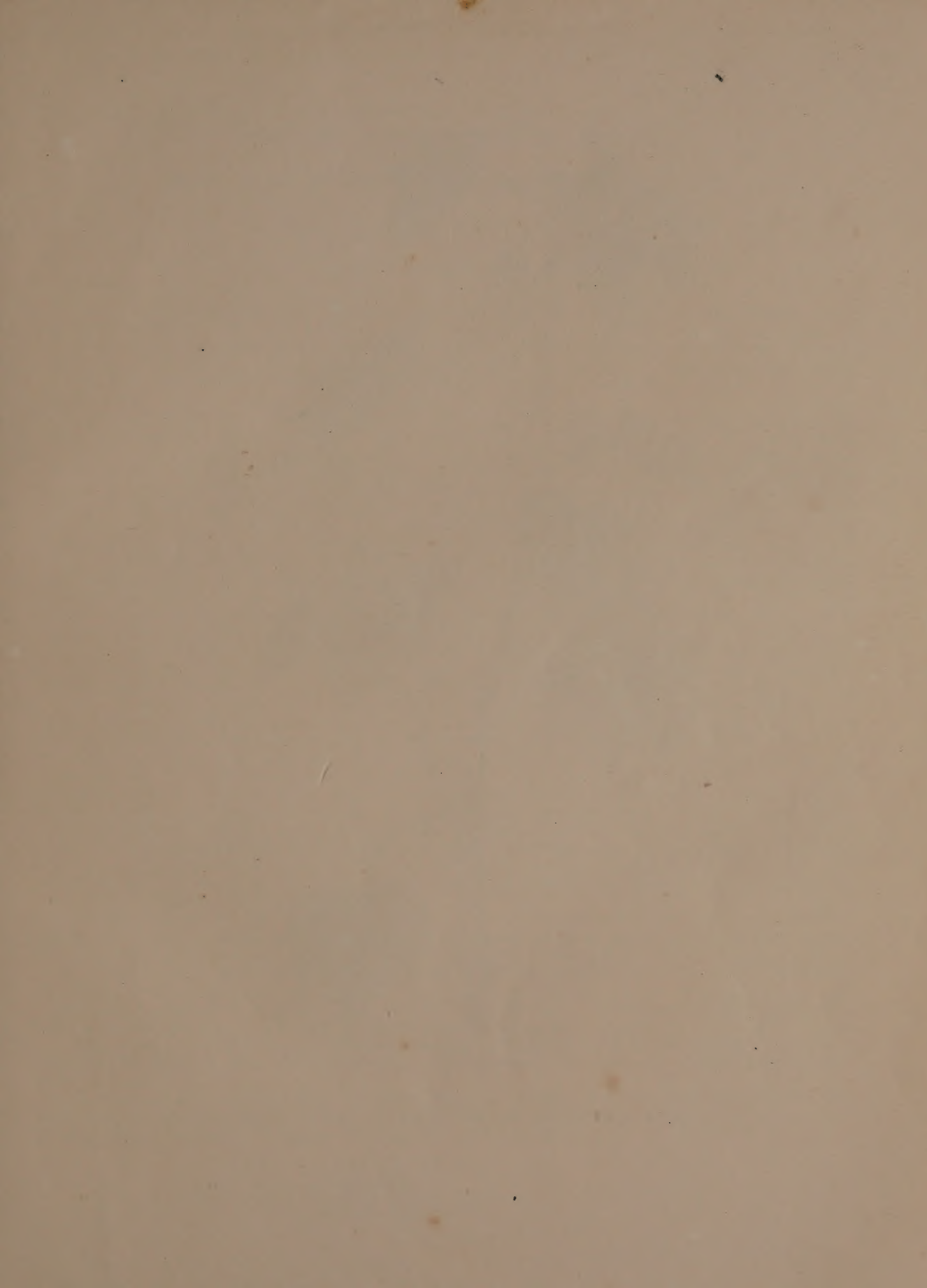
“The mallow purpling o'er the pleasant sides
Of pathways green.”

DR. BIDLAKE.

“We call,” says a delightful author, “upon the admirers of the good and beautiful to help us in ‘rescuing nature from obloquy.’ All you that are lovers of nature in books,—lovers of music, painting, and poetry,—lovers of sweet sounds, and odours, and colours, and all the eloquent and happy face of the rural world with its eyes of sunshine,—you, that are lovers of your species, of youth, and health, and old age,—of manly strength in the manly, of nymph-like graces in the female,—of air, of exercise, of happy currents in your veins,—of the light in great nature's picture,—of all the gentle spiriting, the loveliness, the luxury, that now stands under the smile of heaven, silent and solitary as your fellow-creatures have left it,—go forth on May-day, or on the earliest fine May morning, if that be not fine, and pluck your flowers and your green boughs to adorn your rooms with, and to show that you do not live in vain. These April rains (for May has not yet come, according to the old style, which is the proper one of our climate,) these April rains are fetching forth the full luxury of the trees and hedges;—by the next sunshine, all ‘the green weather,’ as a little gladsome child called it, will have come again; the hedges will be so many thick verdant walls, the fields mossy carpets, the trees clothed to their finger-tips with foliage, the birds saturating the woods with song. Come forth, come forth.”

This was the great rural festival of our forefathers. Their hearts responded merrily to the cheerfulness of the season. At the dawn of May morning the lads and lasses left their towns and villages, and repairing to the woodlands by sound of music, they gathered the *May*, or blossomed branches of the trees, and bound them with wreaths of flowers; then returning to their homes by sunrise, they decorated the lattices and doors with the sweet-smelling spoil of their joyous journey, and spent the remaining hours in sports and pastimes.

In the language of Flowers, the Mallow is the emblem of a mild or sweet disposition.





Begonia Dregii?

BEGONIA DREGII.—DREGE'S BEGONIA.

CLASS XXI. MONŒCIA.—ORDER V. POLYANDRIA.

NATURAL ORDER, BEGONIACEÆ.

FLOWERS monœcious or diœcious. Perianth petaloid, segments generally unequal. *Male Flowers.* Segments of the Perianth 2-4, rarely 6-9, nearly round, the smaller ones often spathulate. Stamina indefinite; filaments more or less united, inserted into the receptacle; anthers erect, connective clavate, somewhat flattened. Pistil wanting. *Female Flowers.* Segments on the Perianth 4-6. Stamina wanting. Styles 3, dilated upwards, undulate. Stigmata stretched along the terminal margin of the styles. Germen inferior, 3-sided, winged, 3-celled. Ovules numerous.

Whole Plant glabrous. Root tuberous, tuber flattened. Stem (in the specimen described, six inches high) erect, succulent, glabrous, pale red, faintly streaked with greenish white oblong spots, many rising from the crown of the root, branched. Leaves ($1\frac{1}{2}$ inch long, 2 inches across) petioled, oblique, transversely elliptico-rhomboid, subpeltate, 5-9-nerved, glabrous on both sides, green, with unequal silvery spots above, red below, darker on the nerves and their branches, doubly crenate; petioles spreading horizontally, twice as long as the leaves, having a shallow channel on the upper side. Stipules large, obliquely-ovate, colourless, reflected in the sides, marcescent. Peduncles axillary, about as long as the petioles, spreading, having at the apex two opposite bracts, similar to the stipules, but rather smaller, more round, and somewhat unequal. Flowers (1 inch across) white, two arising between the bracts, one male, the other female, pedicellate, expanding about the same time; pedicels unequal, that of the male flower the longer, and nearly equal to the length of the peduncle. Male Flower dipetalous, the petals subrotund, flat, slightly unequal. Stamens united by the filaments only at the base; connective short, broad, the two anther cells forming lines along its edges, and of rather paler yellow than it. Female Flower 6-petalous, petals undulate blunt, elliptical, two opposite narrower than the others which are sub-equal, style broad, fan-shaped, undulate, revolute and twisted, having along the terminal edge the villous stigmata, which are of darker yellow than the styles; germen with two sub-equal bluntly pointed wings, which are larger than the third more rounded one.

POPULAR AND GEOGRAPHICAL NOTICE. The very extensive genus *Begonia* was at one time considered entirely tropical, and it does abound especially on the eastern side of tropical South America, and the south and south eastern parts of India. It has been long known, however, that it extends beyond the northern edge of the tropic, in the east of Asia, reaching as high up as Japan. More lately several species have been found in Nepal, but this is less remarkable, as the hot vallies of that country furnish almost a tropical vegetation. I am not aware that any species has been found in America, to the northward of the tropic, though several are found in Mexico. Very few species have been found to the eastward of the Andes, and the species now figured is, I believe, the first which has been detected on the continent of Africa, and in the southern hemisphere the first any where beyond the tropic. It was discovered by Dregé, but I do not know at what distance from the Cape of Good Hope. There is difficulty in finding analogous forms to the begoniaceæ in any other natural order, and diversity of opinion hence arises among botanists as to their true position.

INTRODUCTION; WHERE GROWN; CULTURE. Seeds of this plant were obtained at the Botanic Garden, Edinburgh, from M. Otto, Berlin, in April, 1840, with the M. S. name here adopted, but without any account of its native country, but I have since learned from M. Klotzsch that seeds and dried specimens were transmitted from the Cape of Good Hope to the Botanic Garden at Berlin, by M. Dregé. The seedling plants flowered abundantly with us in September* while in the hotbed where they were raised, and already have formed tubers as large as small oranges. They have received no particular treatment, and it does not appear that there will be any difficulty in preserving them in moderate heat.

DERIVATION OF THE NAMES. *Begonia*, in honour of Begon a French Patron of Botany. *Dregii* in honour of M. Dregé, to whom we are indebted for this interesting addition to our collections, and to the flora of Africa.

A delightful writer observes, that "the name of June, and indeed that of May, gave rise to various etymologies; but the most probable one derives it from Juno, in honour of whom a festival was celebrated at the beginning of the month." He says, "It is now complete summer:—

'Summer is yeomen in,
Loud sing cuckoo;
Groweth seed,
And bloweth mead,
And springeth the weed new.

* At Cambridge.

"Thus sings the oldest English song extant, in a measure which is its own music.—The temperature of the air, however, is still mild, and in our climate sometimes too chilly; but when the season is fine, this is, perhaps, the most delightful month of the year. The hopes of spring are realized, yet the enjoyment is but commenced: we have all summer before us; the cuckoo's two notes are now at what may be called their ripest,—deep and loud; so is the hum of the bee; little clouds lie in lumps of silver about the sky, and sometimes fall to complete the growth of the herbage; yet we may now lie down on the grass, or the flowering banks, to read or write; the grass-hoppers click about us in the warming verdure; and the fields and hedges are in full blossom with the clover, the still more exquisite bean, the pea, the blue and yellow nightshade, the fox-glove, the mallow, white briony, wild honeysuckle, and the flower of the hip or wild rose, which blushes through all the gradations of delicate red and white. The leaves of the hip, especially the young ones, are as beautiful as those of any garden rose. Towards evening, the bat and the owl venture forth, flitting through the glimmering quiet; and at night, the moon looks silveriest, the sky at once darkest and clearest; and when the nightingale, as well as the other birds have done singing, you may hear the undried brooks of the spring running and panting through their leafy channels. 'It ceased,' says the poet, speaking of a sound of heavenly voices about a ship,—

It ceased; yet still the sails made on
A pleasant noise till noon,
A noise like of a hidden brook,
In the leafy month of June,
That to the sleeping woods all night
Singeth a quiet tune.—Coleridge.

"There is a greater accession of flowers, in this month than in any other. In addition to those of the last, the garden sparkles with marygolds, golden-road, larkspur, sun-flowers, amaranths, (which Milton intermingles with sun-beams for his angel's hair,) lupins, carnations, Chinese pinks, holyhocks, ladies' slipper, annual stocks, campanulas, or little bells, martagons, periwinkles, wall-flower, snapdragon, orchis, nasturtium, apocynum, chrysanthemum, cornflower, gladiolus, and convolvulus. The reader who is fond of poetry, and of the Greek fables, and does not happen to be acquainted with professor Martyn's notes upon Virgil, should here be informed, that the species of red lily, called the martagon or Turk's-cap, has been proved by that writer, at least to our satisfaction, to be the real ancient hyacinth, into which the youth of that name was turned by Apollo. The hyacinth, commonly so called, has nothing to show for its being the ancient one, which should be of a blood colour, and was said to be inscribed with the Greek exclamation of sorrow *AI, AI*. Now we were struck with the sort of literal black marks with which the Turk's-cap is speckled, and on reading the professor's notes, and turning to the flower again, we could plainly see, that with some allowance, quite pardonable in a superstition, the marks might now and then fall together, so as to indicate those characters. It is a most beautiful, glowing flower; and shoots gracefully forth in a vase or glass from among white lilies, and the double narcissus:—

'Now tell your story, Hyacinth! and show *Ai Ai* the more amidst your sanguine woe.'

A celebrated modern writer says, "take care of the *minutes*, and the *hours* will take care of themselves." This is an admirable remark, and might be very seasonably recollected when we begin to be "weary in well-doing," from the thought of having much to do. The present moment is all we have to do with in any sense; the past is irrecoverable; the future is uncertain; nor is it fair to burthen one moment with the weight of the next. Sufficient unto the *moment* is the trouble thereof. If we had to walk a hundred miles, we should still have to set but one step at a time, and this process continued would infallibly bring us to our journey's end. Fatigue generally begins, and is always increased, by calculating in a minute the exertion of hours.

Thus, in looking forward to future life, let us recollect that we have not to sustain all its toil, to endure all its sufferings, or encounter all its crosses at once. One moment comes laden with its own *little* burthens, then flies, and is succeeded by another no heavier than the last; if *one* could be borne, so can another, and another.

Even in looking forward to a single day, the spirit may sometimes faint from an anticipation of the duties, the labours, the trials to temper and patience that may be expected. Now this is unjustly laying the burthen of many thousand moments upon *one*. Let any one resolve always to do right *now*, leaving *then* to do as it can; and if he were to live to the age of Methusalem, he would never do wrong. But the common error is to resolve to act right after breakfast, or after dinner, or to-morrow morning, or *next time*; but *now just now, this once*, we must go on the same as ever.

We are indebted for the description to that charming work "the Botanist."

Fucus



Helminthocorton?

vesiculosus

FUCUS VESICULOSUS.—BLADDER FUCUS. BLADDER-WRACK.

CLASS XXIV. CRYPTOGAMIA.—ORDER III. ALGÆ.

NATURAL ORDER, ALGÆ.—THE SEA-WEED TRIBE.

Fig. (a) part of the outside of a receptacle magnified; (b) horizontal section of a receptacle; (c) tubercle; (d) spores; (e) contents of a spore; (f) some of the same; (g) longitudinal section of a vesicle.

UNDER the term *Fuci* are comprehended a tribe of plants, commonly included with the *Ulvæ* and marine *Confervæ*, under the more general tide of submerged *Algæ*, or *Thalassiphyta*, and well known in this country by the popular name of *Sea-weeds*. In Scotland the name *Wrack*, (probably from the French *varec*,) is often applied to those *fuci*, which are cut on the shores for the manufacture of kelp.

The economical uses of sea-weeds are numerous and important. To the agriculturist they furnish a valuable manure. To the glass-maker and soap-boiler they yield the fixed alkali, and the manufacture of kelp for this purpose became a valuable source of revenue to the proprietors of the rocky shores of Europe, particularly of Britain, and more especially of those of the Northern and Western Islands of Scotland, during the late war. From the ashes of the *fuci* the chemist has derived the very curious elementary substance named *Iodine*. Several of them are so rich in saccharine matter and vegetable mucilage, that on the shores of the northern countries of Europe, and the Scottish islands, much of the winter provender of cattle is derived from them. A few of them also afford food to man; some of the smaller sorts are used as condiments; while others are employed as medicines.

The *Fucus vesiculosus* is a perennial plant, growing everywhere on the British shores, on rocks and stones, or cast upon the beach; bearing its fructification in the spring. The root is an expanded, black, woody, callous disc. The frond is smooth and glossy, flat, winged, from one to four feet long, and from $\frac{1}{2}$ in. to $1\frac{1}{2}$ in. wide, linear, forked near the root, and afterwards repeatedly dichotomous, of a dark olive-green colour, becoming paler near the apices, and when dry black and dull. All the branches are nearly of equal height, with the apices rounded, and not unfrequently notched; the margins entire. The substance of the frond is coriaceous, flexible and tough, but brittle after it is dried; and through its whole length furnished with a midrib of a blackish colour, and as thick as a goose-quill, but gradually growing pale and thin. In the membranous part of the frond throughout its whole length are found immersed spherical vesicles, varying in size from a pea to a hazel-nut, externally smooth, and containing in their cavity a quantity of air. Besides these, particularly in the spring, almost always near the apices, are often observable elliptical swellings of a pale yellowish green colour, an inch or two in length, and sometimes occupying the midrib, so that the whole becomes inflated and nearly cylindrical. The fructification consists of compressed, turgid receptacles, solitary or twin, placed at the ends of the branches, varying in form, but mostly elliptical, from one-fourth of an inch to two inches long, and perforated with very minute pores, under which lie imbedded spherical tubercles, composed of short jointed fibres, mixed with seeds of an elliptical form, surrounded with a pellucid limbus, and appearing under a powerful microscope to contain six or seven roundish grains: the centre of the receptacle is filled with a colourless and tasteless mucus, through which passes a network of anastomosing fibres. The varieties α . β . γ . and δ . are found upon the shores of the British isles, and of all the north of Europe, plentifully.

In Scotland this is sometimes called *Black Tang*; sometimes *Kelp-ware*, and when the receptacles are large and swollen, *Strawberry-ware*. The Norwegians call it *Kue-tang*. It is the *Quercus marina* or *Sea Oak* of the older writers.

QUALITIES AND CHEMICAL PROPERTIES.—The most important uses to which *Fucus vesiculosus* is applied is in the manufacture of *Kelp*, which is a very impure carbonate of soda, containing sulphate and chloride of sodium, with a portion of charcoal; and is manufactured in Scotland chiefly in the months of July and August.

Its medical virtues have been much celebrated by Dr. Russell in his Dissertation concerning the uses of Sea-water in the Diseases of the Glands. He found the saponaceous liquor or mucus in the vesicles of the plant to be an excellent resolvent, and useful in dispersing scrofulous swellings. He recommends the patient to rub the tumour with these vesicles bruised in the hand, and afterwards to wash the part with sea-water.

Iodine, as already hinted, is also yielded by kelp. Its name being derived from $\iota\omicron\delta\eta\varsigma$, *violaceus*, in allusion to the very striking circumstance of its yielding a violet-coloured gas on being exposed to an increase of temperature. It was first discovered accidentally by M. Courtois, of Paris, and its properties have been since accurately examined by Clement and Desormes, Gay Lussac, Sir H. Davy, Vauquelin, and Wol-

laston. The latter was the first who gave a regular formula for extracting it; he dissolved the soluble part of kelp in water, and after evaporating it as long as it continued to afford crystals, he added a little more sulphuric acid to the remaining liquid than was necessary to neutralize the free soda which it contained, and after all action had ceased, he added as much black oxide of manganese to the clear liquor which remained, and on the application of heat, iodine was disengaged. The soap manufacturers obtain their principal supply of soda from kelp; and Dr. Ure found, that a very large quantity of iodine may be obtained from the brown oily liquid which remains after most of the soda has been abstracted from the kelp-ley. A basin is filled about one-half with this liquid, after it has been heated to 230° , and for every eight ounces about one ounce of sulphuric acid is added, previously diluted with its own bulk of water; a violent effervescence immediately ensues: sulphur is deposited, while sulphureted hydrogen, sulphurous, carbonic, and muriatic acids are disengaged; and on cooling, crystals are deposited, consisting principally of sulphate of soda. The liquid is filtered, put into a glass retort, and to every twelve ounces, one thousand grains of the black oxide of manganese are to be added; heat is now to be applied, and the iodine rises in a rich purple vapour, which condenses in crystalline plates. It is collected by adapting a receiver to the retort, from which it is easily withdrawn by a little water.

Iodine is a solid substance of a bluish-black colour and metallic lustre. It is soft and friable, and is obtained generally in the form of small scales, sometimes in rhomboidal plates, and even in elongated octohedrons; it does not conduct electricity. It has a pungent odour, an acrid taste, and stains the skin of a deep brownish-yellow colour; when taken in considerable quantity, it acts as a strong poison.

Dr. Coindet, of Geneva, suspecting from analogy that *iodine* was the active principle in sponge, was induced to try it in those cases for which burnt sponge was administered, and his success in the treatment of bronchocele was very remarkable. It has been used by many practitioners both on the continent and in our own country, with undiminished reputation. Success is most commonly to be expected in recent cases, and when the patient is young; several instances have, however, occurred, in which old, hard, and very large goitres have yielded to this remedy; but in such instances as the course of treatment is protracted, it may have injurious effects on the stomach; to obviate which it has been the object to introduce the remedy by means of friction: and a case is recorded by Mr. Rickwood, where a patient was cured at the age of seventy years. Iodine has been likewise employed in the treatment of scrofula with equal success; and in the hands of M. M. Hufeland and Osan, the efficacy of the tincture of iodine, and hydriodate of potass has been fully proved; they have also employed the same preparations with advantage in scirrhus and cancer. Dr. Wagner speaks of its beneficial influence on a tumour situated in the neighbourhood of the jaw, which he considered cancerous.

Dr. Baron has employed it with some success in the treatment of scrofulous phthisis, and other tuberculous affections; and the late Mr. Haden also reports a case of phthisis supposed to have been cured by iodine. Cases are also recorded of its success in ovarian dropsy. The most sanguine will hardly venture to hold out Iodine or any other substance yet known, as a cure for those terrible scourges of the human race, cancer, and phthisis, such ill judged promises only foster empiricism, but in scrofula, in rheumatism, and some kinds of gout, and especially where the constitution has been undermined either by mercury, or by any of the complaints for which that mineral has been given, Iodine is a powerful remedy, and one of the most important acquisitions of modern science.

The value of iodine as a remedial agent in a vast variety of important diseases, does not rest on the testimony of one or two individuals only; but its employment is established through the concurrent testimonies of many eminent men in different countries.

If iodine be taken in doses too large, or be not properly watched as to its effects, it is apt to produce inflammation of the stomach, attended by nausea, incessant vomiting, and general emaciation.

These facts, however important to be known, do not in the least militate against the judicious employment of a remedy, so justly valued by every scientific physician.

FUCUS (*vel* GIGARTINA.) HEMINTHOCORTON.

Corsican Worm-moss.

THIS small species is found growing in the Mediterranean sea, on the coast of Corsica, attached to calcareous rocks and other marine bodies. The root is wholly composed of creeping fibres, variously branched and thickly interwoven. The fronds are very numerous, from the same base, clustered into compact, cushion-like tufts, some inches in width, an inch or an inch and half long, erect, straight, or slightly flexuose cylindrical, not thicker than hog's bristles, once or twice irregularly dichotomous at short intervals, with erecto-patent segments of nearly equal height, all remarkably acuminate.



Veronica Chamædrys.

VERONICA CHAMÆDRYS.—THE GERMANDER SPEEDWELL.

CLASS II. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SPIGELIACEÆ.—THE WORM-SEED TRIBE.

CLUSTERS many-flowered; leaves egg-shaped, sessile, deeply serrate; stem with two opposite rows of long white hairs.—Stems decumbent at the base, marked with two lines of long hairs, which change sides between each pair of leaves: leaves wrinkled and hairy, with large serratures: clusters long, shooting up beyond the stem: flowers large, bright blue, with deeper streaks, externally pale purple; capsule inversely heart-shaped. Perennial: flowers in May and June: grows on dry banks, under hedges, in open pastures and in woods; very common.

Most of the Veronicas are natives of cold countries, and consequently hardy: they may be increased by parting the roots in autumn; which in pots, should be done every year. The annual kinds may be sown in Autumn.

The Cross-leaved species requires shelter from frost; it is increased by cuttings made in any of the summer months. These plants prefer the shade, and must be kept moist.

The flowers are flesh-coloured, blue, or white. The Blue Rock Speedwell is a beautiful little plant, and is a native of Switzerland, Austria, Denmark, Norway, and Scotland. It is by some, familiarly called Forget-me-not; a name given also to the ground pine, a species of germander: but the true Forget-me-not is the water mouse-ear, the *Myosotis palustris* of the botanists.

It is a lovely little flower, varying in size according to soil and situation; sometimes its diameter is about the third of an inch, and in some places the flowers are so small, that it is not easy to find them. Gerard describes it as a species of the *Euphrasia* or Eyebright. The flower described by Spenser in the following lines, to which he gives the name of *Astrophel*, in compliment to Sir Philip Sidney, whose death he laments, exactly answers to this beautiful little wild-flower.

"The gods, which all things see, this same beheld,
And pitying this pair of lovers true,
Transformed them there lying on the field,
Into one flower that is both red and blue:
It first grows red, and then to blue doth fade,
Like *astrophel* which thereinto was made.

And in the midst thereof a star appears,
As fairly formed as any star in skies;
Resembling *Stella* in her freshest years,
Forth darting beams of beauty from her eyes;
And all the day it standeth full of dew,
Which is the tears that from her eyes did flow.

That herb of some starlight is called by name,
Of others *penthia*, though not so well;
But thou, wherever thou dost find the same,
From this day forth do call it *astrophel*:
And whensoever thou it up doest take,
Do pluck it softly, for that shepherd's sake."

The Germander Speedwell is a native of Europe and Japan. "Few of our wild flowers," says Mr. Martyn, "can vie in elegance and brilliancy with this: and many plants with far less beauty are cultivated in our gardens. In May and June every hedge-bottom and grassy bank is adorned with it. At night, or under the influence of moisture, the corolla closes, but in dry bright weather appears fully expanded; and though each flower is short lived, there is a copious succession."

Dr. Withering says the leaves are an excellent substitute for tea. The Common-Speedwell has been much recommended for this purpose, especially in Germany and Sweden; and the French still call it the *Thé de l'Europe*.

The leaves of some of the species are eaten in salad, or as water-cresses.

In July we have full summer. The "Mirror of the Months" presents its various influences on the open face of nature. "The rye is yellow, and almost ripe for the sickle. The wheat and barley are of a dull green, from their swelling ears being alone visible, as they bow before every breeze that blows over them. The oats are whitening apace, and quiver, each individual grain on its light stem, as they hang like rain-drops in the air. Looked on separately, and at a distance, these three now wear a somewhat dull and monotonous hue, when growing in great spaces; but these will be intersected, in all directions, by patches

of the brilliant emerald which now begins to spring afresh on the late-mown meadows; by the golden yellow of the rye, in some cases cut, and standing in sheaves; by the rich dark green of the turnip-fields; and still more brilliantly by sweeps, here and there, of the bright yellow charlock, and scarlet corn-poppy, and the blue succory, which, like perverse beauties, scatter the stray gifts of their charms in proportion as the soil cannot afford to support the expences attendant on them."

On the high downs, "all the little molehills are purple with the flowers of the wild thyme, which exhales its rich aromatic odour as you press it with your feet; and among it the elegant blue heath-bell is nodding its half-dependent head from its almost invisible stem,—its perpetual motion, at the slightest breath of air, giving it the look of a living thing hovering on invisible wings just above the ground. Every here and there, too, we meet with little patches of dark green heaths, hung all over with their clusters of exquisitely wrought filigree flowers, endless in the variety of their forms, but all of the most curiously delicate fabric, and all, in their minute beauty, unparalleled by the proudest occupiers of the parterre. This is the singular family of plants that, when cultivated in pots, and trained to form heads on separate stems, give one the idea of the forest trees of a Lilliputian people." Here, too, are the "innumerable little thread-like spikes that now rise from out the level turf, with scarcely perceptible seed heads at top, and keep the otherwise dead flat perpetually alive, by bending and twinkling beneath the sun and breeze."

In the green lanes "we shall find the ground beneath our feet, the hedges that enclose us on either side, and the dry banks and damp ditches beneath them, clothed in a beautiful variety of flowers that we have not yet had an opportunity of noticing. In the hedge-rows which are now grown into impervious walls of many-coloured and many-shaped leaves, from the fine filigree-work of the white-thorn, to the large, coarse, round leaves of the hazel) we shall find the most remarkable of these, winding up intricately among the crowded branches, and shooting out their flowers here and there, among other leaves than their own, or hanging themselves into festoons and fringes on the outside, by unseen tendrils. Most conspicuous among the first of these is the great bind-weed, thrusting out its elegantly-formed snow-white flowers, but carefully concealing its leaves and stem in the thick of the shrubs which yield it support. Nearer to the ground, and more exposed, we shall meet with a handsome relative of the above, the common red and white wild convolvulus; while all along the face of the hedge, clinging to it lightly, the various coloured vetches, and the enchanter's night-shade, hang their flowers into the open air; the first exquisitely fashioned, with wings like the pea, only smaller; and the other elaborate in its construction and even beautiful, with its rich purple petals turned back to expose a centre of deep yellow; but still, with all its beauty, not without a strange and sinister look, which at once points it out as a poison-flower. It is this which afterwards turns to those bunches of scarlet berries which hang so temptingly in autumn, just within the reach of little children, and which it requires all the eloquence of their grandmothers to prevent them from tasting. In the midst of these, and above them all, the woodbine now hangs out its flowers more profusely than ever, and rivals in sweetness all the other field scents of this month.

"On the bank from which the hedge-row rises, and on *this* side of the now nearly dry water-channel beneath, fringing the border of the green path on which we are walking, a most rich variety of field-flowers will also now be found. We dare not stay to notice the half of them, because their beauties, though even more exquisite than those hitherto described, are of that unobtrusive nature that you must stoop to pick them up, and must come to an actual commune with them, before they can be even seen distinctly; which is more than our desultory and fugitive gaze will permit,—the plan of our walk only allowing us to pay the passing homage of a word to those objects that *will* not be overlooked. Many of the exquisite little flowers, now alluded to generally, look, as they lie among their low leaves, only like minute morsels of many-coloured glass scattered upon the green ground—scarlet, and sapphire, and rose, and purple, and white, and azure, and golden. But pick them up, and bring them towards the eye, and you will find them pencilled with a thousand dainty devices, and elaborated into the most exquisite forms and fancies, fit to be strung into necklaces for fairy Titania, or set in brooches and bracelets for the neatest-handed of her nymphs.

"But there are many others that come into bloom this month, some of which we cannot pass unnoticed if we would. Conspicuous among them are the centaury, with its elegant cluster of small, pink, star-like flowers; the ladies' bed-straw, with its rich yellow tufts; the meadow-sweet—sweetest of all the sweeteners of the meadows; the wood betony, lifting up its handsome head of rose-coloured blossoms; and, still in full perfection, and towering up from among the low groundlings that usually surround it, the stately fox-glove."



Prunus Lauro-cerasus

PRUNUS LAURO-CERASUS.—THE CHERRY LAUREL.

CLASS XII. ICOSANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMYGDALÆ.—THE ALMOND TRIBE.

Fig. (a) represents a section of a flower, showing the position of the stamens; (b) the germen and style; (c) the fruit; (d) a drupe cut across, to show the nut or stone.

THE cherry-laurel is a native of the Levant, and was cultivated in Britain as early as 1629; but the precise period of its introduction is uncertain. It is a hardy evergreen shrub, or small tree, and is planted near houses, and in shrubberies, as an ornamental plant, producing its elegant spikes of odorous white blossoms early in May. We may remark, that it is frequently mistaken for the bay, and is erroneously regarded as the plant which furnished crowns for the Roman heroes. There is no doubt, however, that it was the sweet-bay (*Laurus nobilis*), which furnished the wreath worn on the brow of the victor, and of the priestess of Delphi. The mistake is supposed to have arisen from the bay, which is a true *laurus*, having formerly been called laurel, and the fruit of it only named *bayes*, while in modern times the cherry-laurel has usurped its name.

The cherry-laurel attains the ordinary stature of a plum or cherry-tree, sending off long spreading branches, covered with a smooth brown bark. The leaves are alternate, and stand upon short foot-stalks; they are elliptical or obovate, tapering towards the base, pointed and curved at the apex, minutely toothed, smooth, and polished with a prominent midrib, and of a deep green colour. At their base, underneath, are two small yellow glands. The flowers are in spikes, on short, simple, axillary peduncles. The calyx is inferior, bell-shaped, and divided at the brim into five obtuse segments. The corolla consists of five small white concave, roundish, spreading segments. The filaments, which are alternately long and short, are about eighteen, awl-shaped, inserted into the calyx, and furnished with roundish yellow anthers. Before the petals unfold, the stamens are inflexed, and the anthers disposed in a circular form within the rim of the calyx, as is well represented on the plate (fig. a.) The germen is roundish, supporting a columnar style, and terminated by an orbicular stigma. The fruit, or drupe, is globular, of a shining black colour, and resembling a small cherry, both in its external appearance and internal structure.

The plum, the cherry, and the cherry-laurel, all included by Linnæus in his genus *Prunus* were considered generically distinct by the older botanists; and in modern times they are again admitted as subgenera, even by those who deny their differences to be sufficient to constitute generic characters.

The Pruni are easily distinguished from the Cerasi and Lauro-cerasi by the fruit being *pruinose* or covered with a resinous excretion called *bloom*, while in both the latter the drupes are glaucous; but in the *Cerasi* or true cherries, the inflorescence is in tufts or *sertula*, while in the *Lauro-cerasi* it is in racemes: the distinction is important, because it is in the latter group that prussic acid is the most abundant.

POISONOUS EFFECTS.—The Distilled water of this plant, the virtues of which depend on the prussic acid that it contains, is a deadly poison. When applied to wounds in animals it induces vomiting, convulsions, great prostration of strength, diminished sensibility, and death. Its action has been found most rapid and intense when injected into the jugular vein.

Many cases are on record of its effects on man; the earliest with which we are acquainted, are contained in the 37th vol. of the Phil. Trans., in a paper communicated by Dr. Madden of Dublin, part of which we give. "A very extraordinary accident that fell out here some months ago, has discovered to us a most dangerous poison, which was never before known to be so, though it has been in frequent use among us. The thing I mean is a simple water, distilled from the leaves of the *Lauro-cerasus*. The water is, at first, of a milky colour, but the oil which comes over with it, being in a good measure separated from the phlegm; by passing it through a flannel-bag, it becomes as clear as common water. It has the smell of the bitter almond, or peach-kernel, and has been for many years in frequent use among our housewives and cooks, to give that agreeable flavour to their creams and puddings. It has also been much in use among our drinkers of drams; and the proportion they generally use it in, has been one part of laurel-water, to four of brandy. Nor has the practice, (however frequent,) ever been attended with any apparent ill consequences, till some time in the month of September, 1728, when it happened that one Martha Boyse, a servant, who lived with a person that sold great quantities of this water, got a bottle of it from her mistress, and gave it to her mother, Anne Boyse, as a very rich cordial.

"Anne Boyse made a present of it to Frances Eaton, her sister, who was a shopkeeper in the town, and who she thought might oblige her customers with it. Accordingly, in a few days, she gave about two ounces of the water to a woman called Mary Whaley, who had bought some goods of her. Mary Whaley

drank about two-thirds of what was filled out, and went away. Frances Eaton drank the rest. Mary Whaley went to another shop, and in about a quarter of an hour after she had drank the water, she complained of a violent disorder in her stomach. She was carried home, and from that time she lost her spirits and died in about an hour, without vomiting, or any convulsion.

"The shopkeeper, Frances Eaton, sent word to her sister, Anne Boyse, of what had happened, who came to her and affirmed that it was not possible that the cordial, as she called it, could have occasioned the death of the woman; and to convince her of it, she filled out about three spoonsful and drank it. She continued talking with Frances Eaton about two minutes longer, and was so earnest to persuade her of the liquor being inoffensive, that she poured out two spoonsful more, and drank it off likewise. She was hardly well seated in her chair, when she died, without the least groan or convulsion. Frances Eaton, who had drank somewhat above a spoonful, found no disorder in her stomach or elsewhere; but to prevent any ill consequences, she took a vomit, and has been well ever since.

Mary Whaley was buried without being examined by any one that I can find, except the coroner. I went to see Anne Boyse about twenty-four hours after her death, but could not prevail to have her opened. She was about sixty years old; her countenance and skin appeared well coloured, and her features were hardly altered, so that she looked as one asleep. Her belly was not swelled, nor had she any other external mark of poison.

"This accident brought into discourse another of the like nature, which happened about four years since in the town of Kilkenny. A young gentleman, son to Alderman Evans, mistook a bottle of laurel-water for one of ptisan. What quantity he drank is uncertain, but he died in a few minutes, complaining of a violent disorder in his stomach. The affair was not much regarded at that time, because he laboured under a distemper, to which, or to an improper use of remedies, his death was attributed by those about him."

Then follow Dr. Madden's experiments on animals; and the same volume contains also a narration of Dr. Mortimer's.

Foderé states, that "when he was attending his studies at Turin, in 1784, the chambermaid and man servant of a noble family of that town, stole, for the purpose of regaling themselves, a bottle of distilled laurel-water, which they mistook for an excellent cordial. Fearful of being surprised, they hastily swallowed, one after the other, several mouthfuls of it: but they soon paid a fearful price for their dishonesty, as they expired almost instantly in convulsions. The dead bodies were carried to the university for examination. The stomach was found highly inflamed, but the rest of the organs were in a sound state."

A very interesting trial took place during the last century, from a supposition (well grounded we conceive) that the distilled laurel-water had been administered. As it is often referred to by medico-legal writers, we think it right to give the account, which, with some remarks of Professor Beck, are quoted from his valuable work on Medical Jurisprudence; the pamphlet, containing an account of the trial, taken in shorthand by Mr. Gurney, being so scarce that we are unable to obtain it.

"Sir Theodosius Boughton was a young gentleman of fortune in the county of Warwick, and nearly arrived at the age of twenty-one. His mother and his brother-in-law, Captain Donellan, and his sister, (Mrs. Donellan,) resided with him. In the event of his dying before the period of his majority, the greatest part of his fortune descended to his sister, and Captain Donellan would thus become entitled to a life-estate in it. Sir Theodosius was labouring under a slight affection, for which he was attended by Mr. Powell, of Rugby. His general health was, however stated to have been good. On the 29th of August, 1780, Mr. Powell sent him a draught to be taken on the next morning. The bottle containing this was placed on a shelf in his bed-room. He returned in the afternoon of this day from fishing, in good health and spirits. In the morning, a servant awoke him at an early hour, for the purpose of obtaining some straps for a net. He arose, and went into the next room for them. Even now he appeared in perfect health. About seven A. M. Lady Boughton got up and went into his room, as he had before desired her, to give him the medicine. He desired her to reach down the draught which was labelled "purging Draught for Sir T.B.," and she poured it into a cup. He had not, however, swallowed more than half of it, when he complained that it was so nauseous to the taste, and disagreeable to the smell, that he did not apprehend he should be able to keep it on his stomach. This remark induced Lady Boughton to smell the draught. She found it very peculiar in this respect, and observed to him that it smelt very strongly of bitter almonds. He ate some cheese in order to take the taste out of his mouth, and afterwards washed his mouth with some water. In about two minutes after swallowing the draught, he appeared to struggle very much, as if to keep it down, and had a rattling and gurgling in his stomach. These symptoms continued about ten minutes, when he seemed to Lady Boughton to be inclined to go to sleep, and she left the room. She returned again in about five minutes, and was surprised to find him with his eyes fixed upwards, his teeth clenched, and froth running out of his mouth. He died in about half-an-hour afterwards, never having spoken since he took the draught. Captain Donellan was tried and executed for the murder, on the presumption that he had put laurel water into the draught: recent cases have cleared up much of the mystery which hangs over all those which we have quoted.



Polygonum Bistorta.

POLYGONUM BISTORTA.—GREAT BISTORT, OR SNAKE WEED.

CLASS VIII. OCTANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, POLYGONEÆ.—THE BACK-WHEAT TRIBE.

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Fig. (a) represents a perfect flower magnified; (b) the germen and styles.

BISTORT is an indigenous perennial plant, growing abundantly in many parts of Britain, particularly in the northern counties, where it frequently proves a very troublesome weed. We found it in large patches in the meadows at Battersea, and also on the north side of Bishop's Wood near Hampstead, where it is said to have grown for more than a half a century. It flowers in May and June.

The root is creeping, woody, and generally more or less bent and crooked; it is about the thickness of a finger, surrounded with slender fibres, of a brownish black color on the outside, and reddish within. The stem is solitary, simple, erect, about a foot or eighteen inches in height, round, swelling at the joints, striated and smooth. The leaves are entire, ovate, smooth, somewhat flexuose, of a bright green colour, and glaucous beneath; the radical ones are somewhat cordate, pointed, and stand upon long winged, or rather decurrent footstalks; those of the stem are almost sessile, amplexicaule, having tubular, sheathing foot-stalks, each furnished with membranous stipulæ or ochreæ. The flowers terminate the stem in a close cylindrical spike, about two inches in length; each of them stands single on very short slender stalks, with membranous, notched, brown bracteas at the base. The calyx is generally rose-coloured, and deeply divided into five obtuse segments; the stamens are eight, tapering, longer than the calyx, and supporting purple anthers; the germen is triangular, bearing three distinct styles, with small obtuse stigmas. The nuts are triangular, black, and shining, each containing a single seed.

According to Professor Alston, the name of this plant, *Bistorte*, *quasi bis torta*, twice twisted or wreathed, is of modern date; for it was formerly termed *Serpentaria*, *Colubrina*, and *Dracunculus*, Hoffman remarking, "*Radix est serpentis modo intorta.*" The generic name *Polygonum*, is adopted from Dioscorides, whose *πολύγωνον ἀρ' ῥην*, or male polygonum, is regarded as our *P. aviculare*, or common knot-grass.

QUALITIES.—The root of Bistort, the part used in medicine, is inodorous; but to the taste very astringent. It gives out its virtues to water, and "turns a solution of green vitriol to ink."

*P. Bistorta* is one of the more powerful vegetable astringents; its root contains tannin and gallic acid in abundance, so that it is not only very useful in cases of diarrhœa and other fluxes, but might also be employed in the tanning of leather, being equivalent it is said to double the quantity of oak-bark. The roots abound in fecula, which, when the tan is separated, may be used as food; bread is made of it, as well as of *P. Sibiricum*, in Russia. Scheele discovered oxalic acid in this plant. Its seeds are commonly fed upon by birds, and do well to fatten poultry. The young shoots of bistort, called 'Easter-giant,' were formerly eaten in the north of England in the provincial 'herb-puddings;' and in the neighbourhood of Manchester they are still brought to table as greens, under the name of Patience Dock.

MEDICAL PROPERTIES AND USES.—Bistort is really a very powerful astringent, and appears to be neglected merely because it grows in almost every meadow. The powdered root, in doses of a drachm, will be found useful in hæmorrhage, diarrhœa, and chronic dysentery; and, combined with bitters, has been recommended for the cure of intermittent fever, by Dr. Cullen. By the following quotation from Gerarde it will be seen, that its virtues were much better appreciated in former times: he says, "The iuyce of Bistort, put into the nose, preuaileth much againste the disease callen Polypus . . . . The root boyled in wine, and drunke, stayeth vomiting, and healeth the inflammation and sorenesses of the mouth and throat; it likewites fastneth loose teeth, being holden in the mouthe for a certain space, and at sundry times."



"The number of flowers is now sensibly diminished. Those that flower newly are nigella, zinnias, polyanthuses, love-apples, mignonette, Michaelmas daisies, auriculas, asters, or stars, and China-asters. The additional trees and shrubs in flower are the tamarisk, altheas, Venetian sumach, pomegranates, the beautiful passion-flower, the trumpet-flower, and the virgin's bower, or clematis, which is such a quick and handsome climber. But the quantity of fruit is considerably multiplied, especially that of pears, peaches, apricots, and grapes. And if the little delicate wild flowers have at least withdrawn from the hot sun, the wastes, marshes, and woods are dressed in the luxuriant attire of ferns and heaths, with all their varieties of green, purple, and gold. A piece of waste land, especially where the ground is broken up into little inequalities, as Hampstead-heath, for instance, is now a most bright as well as picturesque object; all the ground, which is in light, giving the sun, as it were, gold for gold. Mignonette, intended to flower in the winter, should now be planted in pots, and have the benefit of a warm situation. Seedlings in pots should have the morning sunshine, and annuals in pots be frequently watered.

The garden blooms with vegetable gold,  
And all Pomona in the orchard glows,  
Her racy fruits now glory in the sun,  
The wall enamour'd flower in saffron blows,  
Gay annuals their spicy sweets unfold,  
To cooling brooks the panting cattle run :  
Hope, the forerunner of the farmer's gain,  
Visits his dreams and multiplies the grain.

It may not be out of place here to notice that singular property of seeds by which they are preserved in the ground for ages. It appears from certain circumstances, that when they are buried below that particular depth at which they feel the influence of the atmosphere and consequently vegetate, they are in a state of preservation which may and does often continue for centuries---perhaps, for aught we know to the contrary, to the end of the world, if undisturbed; certainly, however, to an amazing extent of time. By this beautiful law of the all-wise Creator, the vegetable tribes are never likely to be lost. However cultivation or carelessness may tend to extirpate certain species, their seeds lie in myriads in the treasury of the earth, and some event such as we sometimes witness, the lowering of a hill, the cutting of a single turf, exposes them to the action of the air, and forth they spring. Thus it is that farmers are frequently surprized on ploughing up a field that has lain in lea beyond the memory of man, to see a plentiful crop of various and unusual plants spring up. So I have observed in Sherwood Forest, that where turf is pared, henbane is almost sure to exhibit itself, though none has been seen in the neighbourhood for years. Many instances of this kind have no doubt attracted the attention of all curious lovers of Nature.

Says Howitt, "I must not omit to notice the splendid appearance of the HARVEST MOON. The circumstance of this moon rising several nights successively almost at the same time, immediately after sunset, has given it an importance in the eyes of the farmers; but it is not the less remarkable for its singular and splendid beauty. No moon during the year can bear any comparison with it. At its rising it has a character so peculiarly its own, that the more a person is accustomed to expect and to observe it, the more it strikes him with astonishment. I would advise every one who can go out in the country, to make a practice of watching for its rising. The warmth and the dryness of the earth, the clearness and balmy serenity of the atmosphere at that season, the sounds of voices borne from distant fields, the freshness which comes with the evening, combine to make the twilight walk delicious; and scarcely has the sun departed in the west, when the moon in the east rises from beyond some solitary hill, or from behind the dark rich foliage of trees, and sails up into the still and transparent air in the full magnificence of a world. It comes not as in common, a fair but flat disc on the face of the sky,—we behold it suspended in the crystal air in its greatness and rotundity; we perceive the distance beyond it as sensibly as that before it; and its apparent size is magnificent. In a short time, however, it has acquired a considerable altitude—its apparent bulk has diminished—its majestic grandeur has waned, and it sails on its way calmly beautiful, but in nothing differing from its usual character."









*Pimelea intermedia.*



## PIMELEA INTERMEDIA.—INTERMEDIATE PIMELEA.

CLASS III. DIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BURSERIACEÆ.

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CHARACTER OF THE GENUS PIMELEA. PERIANTH funnel-shaped, limb four-cleft, throat without scales. Stamens two, inserted into the throat, opposite to the outer segments. Style lateral. Stigma capitate. Nut with a hard external coat, rarely berried.

DESCRIPTION OF THE SPECIES, PIMELEA INTERMEDIA. Shrub slender, erect, with long, straight, almost filiform branches, which are covered with brownish-yellow, glabrous, craked, bark. Leaves (three-quarters of an inch long, about two lines broad) glaucous, glabrous on both sides, with a distinct mid-rib, but no conspicuous veins, linear-lanceolate, inclining to spathulate on the branches, becoming ovate and shorter towards the *capitulum*, which is many-flowered and terminal. Flowers white, longer than the involucre, which scarcely differs from the ordinary leaves of the plant. Perianth surrounded at its base with long erect hairs, tomentose on the outside, striated, dilated over the germen, and diaphanous between the striæ at this part; segments of the limb subequal, elliptical, with slightly involute edges. Stamens at first erect, afterwards reflexed on the limb, and shorter than it. Anthers oblong, pollen bright orange. Germen oblong, pale, green, glabrous. Style filiform, glabrous, longer than the perianth; stigma minute, capitate, bearded.

POPULAR AND GEOGRAPHICAL NOTICE. The genus *Pimelea* is widely distributed along the coasts of Australia and in Van Diemen's Land, and a few species are found in New Zealand. Many of them are very ornamental, and the more popular in cultivation on account of the facility of management of the greater number, and the profusion of flowers which they produce. The present species is native of King George's Sound.

INTRODUCTION; WHERE GROWN; CULTURE. I believe this plant was first raised at Mr Low's nursery, Clapton, from seed gathered by Mr. Baxter, its discoverer. In the arrangement of the species it must be placed in the section in which the floral leaves and those of the branches are subsimilar, and should stand next to *Pimelea sylvestris*. It is of slender growth, about two feet high, has not perfected seeds, but is easily propagated by cuttings, and grows readily in peat soil, mixed with sand, under the protection of the greenhouse.

DERIVATION OF THE NAME. *Pimelea*, said to be from *πυμῆλη* fat. The trees yield very fat oil and resin.

A description of the glories of this month—the forerunner of bounteous autumn—would be a volume of splendid beauties; it is, for the most part, executed by the Author of the Months; “Our moral being owes deep obligations to all who assist us to study nature aright; for, believe us, it is high and rare knowledge to know, and to have, the full and true use of our eyes. Millions go to the grave in old age without ever having learned it; they were just beginning perhaps to acquire it, when they sighed to think that ‘they who look out of the windows were darkened;’ and that, while they had been instructed how to look sad shadows had fallen on the whole face of nature; and that the time for those intuitions was gone for ever. But the science of seeing has now found favor in our eyes; and ‘blessings are with them and eternal praise,’ who can discover, discern, and describe the least as the greatest of nature’s works; who can see as distinctly the finger of God in the little humming-bird murmuring around a rose-bush, as in that of ‘the star of Jove, so beautiful and large,’ shining sole in heaven.—Take up now almost any book you may, or any branch of natural history, and instead of the endless dry details of imaginary systems and classifications, in which the ludicrous littleness of man’s vain ingenuity used to be set up as a sort of symbolical scheme of revelation of the sublime varieties of the inferior—as we choose to call it—creation of God, you find high attempts in a humble spirit rather to illustrate tendencies, and uses, and harmonies, and order, and design.

A delightful author says that "August is the month of harvest. The crops usually begin with rye and oats, proceed with wheat, and finish with peas and beans. Harvest-home is still the greatest rural holiday in England, because it concludes at once the most laborious and most lucrative of the farmer's employments, and unites repose and profit. Thank heaven there are, and must be, seasons of some repose in agricultural employments, or the countryman would work with as unceasing a madness, and contrive to be almost as diseased and unhealthy as the citizen. But here again, and for the reasons already mentioned, our holiday-making is not what it was. Our ancestors used to burst into an enthusiasm of joy at the end of harvest, and appear even to have mingled their previous labour with considerable merry-making, in which they imitated the equality of the earlier ages. They crowned the wheat-sheaves with flowers, they sang, they shouted, they danced, they invited each other, or met to feast, as at Christmas, in the halls of rich houses; and what was a very amiable custom, and wise beyond the commoner wisdom that may seem to lie on the top of it, every one that had been concerned, man, woman, and child, received a little present—ribbons, laces, or sweatmeats.

The farmer is in the field, like a rural king amid his people—the labourer, old or young, is there to collect what he has sown with toil, and watched in its growth with pride; the dame has left her wheel and her shady cottage, and, with sleeve-defended arms, scorns to do less than the best of them:—the blooming damsel is there, adding her sunny beauty to that of universal nature; the boy cuts down the stalks which overtop his head; children glean amongst the shocks; and even the unwalkable infant sits propt with sheaves, and plays with the stubble, and

With all its twined flowers.

Such groups are often seen in the wheat-field as deserve the immortality of the pencil. There is something too about wheat-harvest, which carries back the mind, and feasts it with the pleasures of antiquity. The sickle is almost the only implement which has descended from the olden times in its pristine simplicity—to the present hour neither altering its form nor becoming obsolete amid all the fashions and improvements of the world. It is the same now as it was in those scenes of rural beauty which the scripture history, without any laboured description, often by a single stroke, presents so livingly to the imagination; as it was when tender thoughts passed

Through the sad heart of Ruth, when, sick for home,
She stood in tears amid the alien corn;

when the minstrel-king wandered through the solitudes of Paran, or fields reposing at the feet of Carmel; or "as it fell on a day, that the child of the good Shunamite went out to his father to the reapers. And he said unto his father, My head, my head! And he said to a lad, Carry him to his mother. And when he had taken him, and brought him to his mother, he sat on her knee till noon, and then died." 2 Kings, c. iv. 18—20.

Let no one say it is not a season of happiness to the toiling peasantry; I know that it is. In the days of boyhood I have partaken their harvest labours, and listened to the overflowing of their hearts as they sate amid the sheaves beneath the fine blue sky, or among the rich herbage of some green headland beneath the shade of a tree, while the cool keg plentifully replenished the horn, and sweet after exertion were the contents of the harvest-field basket. I know that the poor harvesters are amongst the most thankful contemplators of the bounty of Providence, though so little of it falls to their share. To them harvest comes as an annual festivity. To their healthful frames, the heat of the open fields, which would oppress the languid and relaxed, is but an exhilarating and pleasant glow. The inspiration of the clear sky above, and of scenes of plenty around them, and the very circumstance of their being drawn from their several dwellings at this bright season, open their hearts and give a life to their memories: and many an anecdote and history from "the simple annals of the poor" are there related, which need only to pass through the mind of a Wordsworth or a Crabbe, to become immortal in their mirth or woe,



Marcellia decussata?

MARCETIA DECUSSATA.—CROSS-LEAVED MARCETIA.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, MELASTOMACEÆ.

CHARACTER OF THE GENUS MARCETIA. Tube of the calyx, oblong or cylindrical, with four lanceolate lobes. Petals 4, Oval (ovate) acute. Stamens 8, equal (subequal); anthers with two tubercles at the base, oblong, opening by a single pore. Ovarium free, glabrous. Style filiform. Stigma minute. Capsule 4-valvular, 4-celled, nearly equal to the tube of the calyx. Seeds cochleate.

DESCRIPTION OF THE SPECIES, MARCETIA DECUSSATA. Shrub erect (nine inches high in the specimen described, but from native specimens evidently attaining the size of a small bush.) Stem much branched, round; dark brown, cracked, and exfoliating; branches erect; twigs four-sided, glanduloso-pubescent. Leaves ($3\frac{1}{4}$ lines long) ovate, spreading, mucronulate, 3-nerved, pubescent on both sides, also with short tomentum below, dark green above, paler below, entire and revolute in the edges, middle-rib channelled in front, prominent behind. Flowers small, solitary, axillary, on pedicels shorter than the leaves, about the middle jointed, and there having two opposite leaf-like bracts, above this point turgid when in fruit. Perhaps it would be more correct to consider all below the joint a short axillary branch, with two leaves at the apex, and a terminal ebracteate single-flowered peduncle. Calyx urceolate, glanduloso-pubescent, without bracteoles, or rarely a small one, 4-toothed, teeth spreading, subulate, more than half the length of the tube. Corolla 4-petalled, spreading between the teeth of the calyx, and fully three times as long as them, pale rose-coloured, slightly blotched, ovato-lanceolate, with a small deflected mucro, inserted into the throat of the calyx, glabrous. Stamens 8, inserted into the throat of the calyx, alternately opposite to and between the petals; filaments subequal, erect, scarcely inclining to one side of the flower, glabrous, colourless, equal in length to the petals, but as these are spreading, the stamens project far beyond the corolla, jointed at about two-thirds of the height, and there when in bud folded forwards; anthers at first orange-coloured, afterwards yellow, about half as long as the filaments, slightly declined, without crenatures in front, opening by one terminal pore, having at the base two small rounded auricles, which are rather larger in the longer stamens. Style filiform, rather longer than the stamens, and slightly deflected to the opposite side of the flower from them. Stigma minute. Germen superior, ovate, truncated, nearly as long as the calyx, with eight small teeth on its apex, 4-celled. Ovules very numerous, attached to central placenta, cochleate.

POPULAR AND GEOGRAPHICAL NOTICE. The genus *Marcetia* was established by Decandolle, and the species, believed to be all from Brazil. A plant believed to be one of his species, has been found by Schomburgk to extend to British Guiana. We believe Mr. Bentham has inadvertently referred to Gardner's Specimens, No. 1288, as identical with Schomburgk's No. 1040. The desquamation of the cuticle of the stem and branches, and a remarkable enlargement of the fruit-bearing pedicels above the bracts in Gardner's Plant, are not observed in Schomburgk's. We have no doubt of Gardner's, No. 1288, being identical with the plant now described. Several of the species of *Marcetia* grow at considerable elevations on the mountains; the one now described is found in Bahia, at an elevation of 2000 feet. It is a small neat looking shrub, flowering freely, and during a considerable period.

INTRODUCTION; WHERE GROWN; CULTURE. The species described, the first in cultivation in Britain, was raised at Mr. Cunningham's nursery, Comely Bank, near Edinburgh, from seeds sent from Brazil, by Mr. Gardner. It has been kept in the stove, and one plant placed lately in the greenhouse, stands there in October without injury. It has required no particular management, and has flowered in September and October abundantly.

DERIVATION OF THE NAME. *Marcetia* in honour of Dr. Marcet, to whom we owe some extremely interesting observations on the effects of poisons on vegetables.

It is remarked by the gentleman-usher of the year, that "the fruit garden is one scene of tempting profusion.

"Against the wall, the grapes have put on that transparent look which indicates their complete ripeness, and have dressed their cheeks in that delicate bloom which enables them to bear away the bell of beauty from all their rivals. The peaches and nectarines have become fragrant, and the whole wall where they hang is 'musical with bees.' Along the espaliers, the rosy-cheeked apples look out from among their leaves, like laughing children peeping at each other through screens of foliage; and the young standards bend their straggling boughs to the earth with the weight of their produce.

"Let us not forget to add, that there is one part of London which is never out of season, and is never more in season than now. Covent-garden market is still the garden of gardens; and as there is not a month in all the year in which it does not contrive to belie something or other that has been said in the foregoing pages, as to the particular season of certain flowers, fruits, &c., so now it offers the flowers and the fruits of every season united. How it becomes possessed of all these, I shall not pretend to say: but thus much I am bound to add by way of information,—that those ladies and gentlemen who have country-houses in the neighbourhood of Clapham-common or Camberwell-grove, may now have the pleasure of eating the best fruit out of their own gardens—provided they choose to pay the price of it in Covent-garden market."

September is the month of in-gathering, when the produce of the year is warehoused for our subsistence while nature reposes during winter, and is awakened in the spring, and while she is doing her summer business, until, in the ensuing autumn, she offers to our use the provision for another year.

Autumn is aptly termed by Dr. Drake the "Evening of the Year." At this season we may advantageously indulge with these beautiful passages from his "Evenings in Autumn." He says—

"Evening, when the busy scenes of our existence are withdrawn, when the sun descending leaves the world to silence, and to the soothing influence of twilight, has been ever a favourite portion of the day with the wise and good of all nations. There appears to be shed over the universal face of nature, at this period, a calmness and tranquility, a peace and sanctity as it were, which almost insensibly steals into the breast of man, and disposes him to solitude and meditation. He naturally compares the decline of light and animation with that which attaches to the lot of humanity; and the evening of the day, and the evening of life, becomes closely assimilated in his mind.

"It is an association from which, where vice and guilt have not hardened the heart, the most beneficial result has been ever experienced. It is one which, while it forcibly suggests to us the transient tenure of our being here, teaches us, at the same time, how we may best prepare for that which awaits us hereafter. The sun is descending, after a course of beneficence and utility, in dignity and glory, whilst all around him, as he sinks, breathes one diffusive air of blessedness and repose. It is a scene which marshals us the way we ought to go; it tells us, that after having passed the fervour and vigour of our existence, the morning and the noon of our appointed pilgrimage, thus should the evening of our days set in, mild yet generous in their close, with every earthly ardour softened or subdued, and with the loveliest hues of heaven just mingling in their farewell light.

"It is a scene, moreover, which almost instinctively reminds us of another world; the one we are yet inhabiting is gradually receding from our view; the shades of night are beginning to gather round our heads; we feel forsaken and alone, whilst the blessed luminary now parting from us, and yet burning with such ineffable majesty and beauty, seems about to travel into regions of interminable happiness and splendour. We follow him with a pensive and a wistful eye, and, in the vales of glory which appear to open round his setting beams, we behold mansions of everlasting peace, seats of ever-during delight. It is then that our thoughts are carried forward to a Being infinitely good and great, the God and Father of us all, who, distant though he seem to be, and immeasurably beyond the power of our faculties to comprehend, we yet know is about our path, and about our bed, and careth for us all; who has prepared for those who love him, scenes of unutterable joy, scenes to which, while rejoicing in the brightness of his presence, the effulgence we have faintly attempted to describe shall be but as the glimmering of a distant star."

We are indebted to that charming Work, "the Botanist," for the Figure and Description.



Scilla maritima?

SCILLA MARITIMA.—OFFICINAL SQUILL, OR SEA ONION.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ASPHODELEÆ.—THE ASPHODEL TRIBE.

Fig. (a) exhibits the petals with the stamens and anthers; (b) a bractea; (c) the germen and style.

THIS valuable article of the vegetable materia medica is a native of the sandy shores of France, Spain, Portugal, Italy, Sicily, Syria, and the Levant. Sometimes it is found far inland: for instance, at the foot of the Estrella mountains; so that, as Link observes, *maritima* is rather a fallacious appellation. It thrives well in this country, in large garden pots, and was cultivated by Parkinson in 1628; but requires protection during winter in a common garden frame. With us, it blossoms in April and May; but in its native soil the flowers are said to be produced in July and August; the leaves appearing in October and November.

The bulb, improperly called the root, is sometimes as large as a child's head, and often, when fresh imported, throws out the flowering stem while lying in the shop windows. It is oblong, and composed of several fleshy scales, attenuated at both edges, and closely applied one over the other, like the coats of an onion. Its outer coat is either pale and whitish, or of a purplish-red colour. The proper roots, which are slender and whitish, issue from a plate at the base of the bulb, well represented in our figure, but altogether omitted by Redoute, in his pictorial work on Liliaceous plants. The leaves appear long after the flowers; are pointed, a foot or eighteen inches long, radical, numerous, large, sword-shaped, ascending, wavy, recurved, and of a deep green colour. The stem is round, smooth, succulent, and rises from the centre of the leaves to the height of two or three feet. The flowers are extremely numerous, and produced in a long, close, simple cluster, upon purplish peduncles; accompanied by small linear, twisted, deciduous bracteas. In this, as in other species of Squill, there is no calyx. The corolla consists of six white, elliptical, spreading petals, with a reddish mark in the middle of each. The filaments are six, awl-shaped, shorter than the petals, to whose bases they are attached, and furnished with oblong, incumbent, green anthers. The germen is roundish, with a short style, and simple stigma. The capsule is oblong, smooth, marked with three furrows, 3-celled, and contains several roundish, compressed seeds.

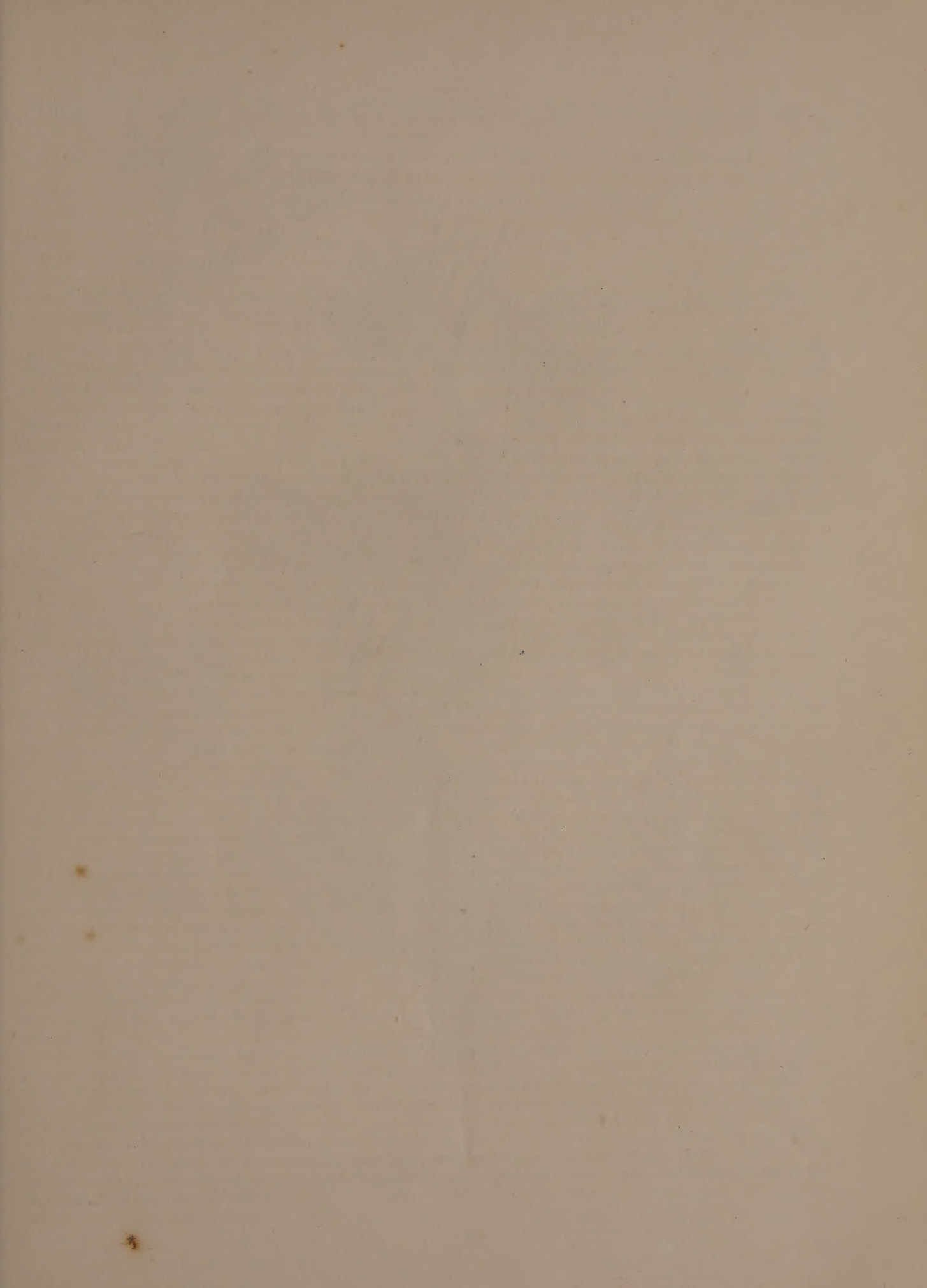
QUALITIES AND CHEMICAL PROPERTIES.—The bulb of the squill, which consists of concentric layers, of a white or purplish colour, is inodorous. When recent, it is extremely bitter, acrid, nauseous, and clammy; dried, it is bitter and less acrid. In France, it is usual to use the intermediate tunics only, the outer ones being dry and without taste, while the middle of the bulb is mucilaginous and nearly insipid. In this country, the whole bulb is generally used; low prices being unfortunately more considered than the quality of the drug.

Dried Squill has been subjected to chemical examination by Vogel, who states that it owes its properties to a bitter principle, which he has named *Scillitine*. Besides *Scillitine* he found it to contain gum, tannin, citrate of lime, sugar, and woody fibre.

Scillitine is obtained by the following process. The juice of the bulbs being expressed, is to be boiled for a few minutes, and the citrate of lime that appears is to be separated. Evaporate to dryness, and digest the dry residue in alcohol as long as that liquid will take up any thing. Evaporate the alcoholic solution to dryness, and the residue (*scillitine* and *tannin*) is to be re-dissolved in water, into which acetate of lead is to be dropped to throw down the tannin. Filter the liquid, and separate the excess of lead by means of a current of sulphuretted hydrogen gas. The liquid being again filtered, evaporate to dryness to drive off the acetic acid from the acetate. The dry mass, which is white, transparent, and breaks with a resinous fracture, is *scillitine*, mixed with a little sugar, from which it cannot be separated. M. Tilloy, of Dijon, is said to have proved that the *Scillitine* of Vogel is formed by the combination of several principles, and that it is only a mixture of uncrystallizable sugar, of an excessively acrid matter, and a very bitter substance, which he succeeded in separating.

MEDICAL PROPERTIES AND USES.—Squill, according to its dose, is expectorant, diuretic, emetic, and purgative. As an expectorant, it is most generally used when there is an increased secretion of pulmonary mucus, and is supposed by Dr. Murray to operate by promoting absorption, diminishing the quantity of fluid effused, and thus facilitating the expectoration of the remainder. This, like most of the theories that have been broached on the action of medicines, appears to us to be very fanciful, and perhaps we may be thought just as visionary, when we state that squills seem to promote expectoration simply by increasing the action of the mucous membrane, whereby its secretion is greater; consequently less viscid, and more readily ejected by coughing. In inflammatory attacks, previously to the abstraction of blood, and the use of other evacuates, squill is generally considered as too stimulant, which effect may be controlled by a judicious combination with nitre, or tartarized antimony. As an expectorant it is particularly useful in whooping-cough; and although its effects as an emetic are truly distressing, it is the one usually employed in this obstinate disease. To produce expectoration, the syrup or vinegar of squill are generally employed, the dose of the former being a drachm; of the latter, half that quantity, repeated every four or five hours. When vomiting is required, larger doses, oftener repeated, are necessary.

As a diuretic, squill is a valuable medicine, and is given in its recent or dried state. The dose of the former is from five to fifteen grains; of the latter, from one to three: the smaller dose should be commenced with, morning and evening, in the form of a pill, and gradually increased in quantity until the diuretic effect is obtained. By some it has been recommended to give it so as to induce some degree of nausea; but it is very distressing to the patient, and often obliges us to discontinue a medicine of undoubted utility; for if the stomach once rebels against it, it is seldom that it can be given in such doses again. Combined with mercury its diuretic effects are materially increased, the former appearing to rouse the absorbents, while the latter stimulates the kidneys. This combination is particularly adapted to those cases in which dropsy depends on, or is connected with enlargement, torpor, or chronic inflammation of the liver. Of the mercurial preparations, the Mercurial pill, and calomel, are generally preferred, though Cullen recommends the oxymuriate.





Pinus Larix.

PINUS, OR ABIES LARIX, LARIX EUROPEA.—THE WHITE LARCH TREE.

CLASS XXI. MONÆCIA.—ORDER VIII. MONADELPHIA.

NATURAL ORDER, CONIFERÆ.—THE FIR TRIBE.

FIG. (a) the staminate catkin, natural size; (A) do. enlarged; (BB) front and side views of the polleniferous scales; (c) pistilliferous catkin natural size; (C) do. enlarged; (d e) front and side views of the scales separated; (D E) do. enlarged; (f) naked seeds with their wings; (g) scales of the cone; (h) a leaf.

THE White Larch is a native of the Alps, of Switzerland, Italy, Germany, and according to Miller, of Siberia. It has been long cultivated very extensively, and with great advantage, in this country; it flowers in March and April, before the leaves are fully expanded.

The Larch is a tree of quick growth, rising to the height of fifty feet or more, with wide spreading branches, whose extremities droop in the most graceful manner. They are adorned with numerous narrow, spreading, linear, bluntish, entire, soft, bright-green leaves, which spring in pencil-like tufts, from alternate, perennial cup-like, scaly buds. The leaves are deciduous, about an inch long, and have no other stipulas than the scales of the bud. From similar buds spring separately, on the same branch, the male and female flowers; the latter only accompanied by a few leaves. The bractes to each flower are numerous, recurved, obtuse, with fine fringe-like teeth, chaffy, reddish-brown, and deciduous. The *male* flowers are in small lateral, cylindrical catkins, yellow, drooping, about an inch long, with the common filament much shorter than the bractes; the anthers crowded, deflexed, inflated, and two-lobed in front, with a short, recurved point. The *female* catkins are erect, ovate; twice as large as the male, beautifully variegated with green and pink; one lip of each scale is orbicular; the other much larger, fiddle-shaped, reflexed, with a prominent, awl-shaped green point. This lip becomes erect, enlarged, projecting always beyond the orbicular one, which dilates, hardens, and becomes the seed-bearing scale of the cone. The strobiles or cones are erect, rather above an inch long, ovate, obtuse at the apex, and purple, when young; and becoming of a reddish brown, when ripe. They have imbricated scales, which are spreading, orbicular, slightly reflexed, and jagged on the edges. In each scale are two-winged seeds.

The Larches are scarcely to be separated generically from the Abietes or Firs, as they agree in having their cone-scales rounded and membranous, and chiefly differ in the fasciculate arrangement of their leaves. The distinction is, however, serviceable, and a still further segregation has been attempted of the Cedars from the true Larches: the leaves of the latter being deciduous, while those of the former are evergreen.

The Larch is, after the common pine, probably the most valuable of the tribe. Though a native of the mountains of more southern regions, it thrives uncommonly well in Britain; and as it grows more rapidly, and also in more varied soils than the other, it is, perhaps, better adapted for general cultivation. In the south, it attains an immense height; some single beams of Larch, employed in the palaces and public buildings of Venice being said to be one hundred and twenty feet long. Even in the plantations of the Duke of Athol, and other proprietors in Perthshire, some larches are at least one hundred feet high. The wild alternation of hill and valley in that county, with the general opening of the glens and exposure of the surface to the south, seem to afford the larch a situation something like its native locality in the Tyrolean and Dalmatian Alps: for though other trees, and some of them fast growing ones, such as the spruce, have been planted at the same time, the larch overtops them all; and in summer, when it is in the full luxuriance of its leaves, (which are a bright clover green,) it rises over the dark forest like an obelisk of beryl. The Larch sheds its leaves, and is probably by that means saved from those keen blasts of the very early spring that prove destructive to pines. Even when naked it is an ornamental tree. The trunk is generally straight, tapering gradually to a point; the branches, which are rather small in proportion to the tree, taper up in the form of a perfect cone; and the whole is of a lively brown, streaked with a golden colour.

It has been extensively planted, more especially in Scotland; and the success has been far greater, and far more uniform, than in the case of any other tree, not a native of the country. It appears that the quality of Larch timber does not depend so much upon the maturity of the tree, and the slowness of its growth, as that of the pine,—as a fishing boat, built of Larch only forty years old, has been found to last three times as long as one of the best Norway pine.

Professor BURNETT in his Outlines, observes, "That much prejudice has existed against the use of the Larch in ship-building; and some persons have not scrupled to call Larch vessels 'leather ships,' and 'sailors' coffins.' But the following statement, given by Mr. Gould, will shew that such notions could only have been founded upon ignorance.

"In 1809, Larch timber, grown by his grace the Duke of Athol, at Dunkeld, was first used in the British Navy at Woolwich, in the building of the *Serapis* storeship, the *Sybille* frigate, the bottom of a lighter, and for piles driven into the mud, alternately wet and dry; and in all these situations proved a durable wood. The *Athol*, of twenty-eight guns, was also built entirely of Larch timber from his Grace's estate; and at the same time the *Niemen*, of the best Riga. After their first course of service, on being examined, the *Niemen* was found in a decayed state, and condemned accordingly; whilst the *Athol* was again put into commission, and is at this time (December, 1832,) on a voyage to the West Indies. It was also remarked that, during the time this Larch timber lay in Woolwich dockyard, exposed to the weather, neither the heart nor the sapwood were in the least decomposed; nor was there the slightest appearance of fungi growing upon it."

It is not so buoyant, however, nor so elastic; and as it does not dry so completely as pine; boards of it are more apt to warp. It is, however, much more tough and compact; and what are very valuable properties, it approaches nearly to being proof, not only against water, but against fire. If the external timbers, and the principal beams of houses, were made of Larch, fires would not only be less frequent, but they would be far less destructive; for, before a Larch beam be even completely charred on the surface, a beam of pine, or of dry oak, will be in a blaze beyond the ordinary means of extinguishment. Larch, however, is heavier to transport and elevate, and also much harder to work, than pine; and as these circumstances are all against the profits of the builder, they probably prevent the introduction of this most safe and durable timber. The Venetian houses constructed of it show no symptoms of decay; and the complete preservation of some of the finest paintings of the great masters of Italy is, in some respects, owing to the panels of Larch on which they are executed.

The objects for which Larch timber seems preferable to every other, are chiefly these:—gates, palings, posts of all kinds that are inserted in the earth or in water, wooden buildings, many agricultural implements, cottage furniture, bridges and gangways, carriages for transporting stones and all hard and rough materials, barrows for builders and road-makers, lighters, fenders, and embanking piles, lock and dock gates for canals and harbours, coal and lime waggons, vessels for carrying lime, pit-props, and hop-poles of the smaller thinnings. For all these purposes, and many minor ones, Larch would come considerably cheaper than any timber now in use; and would, in the average of them, last at least thrice as long,—the saving to the public would thus be immense; and the lands upon which an abundant supply might be raised in every county, are at present lying idle.

The bark of the Larch is nearly as valuable to the tanner as that of the oak. Venice turpentine is the produce of this tree; it also yields a gum which is known as that of Orenburg. This gum is said to issue from the heart-wood, while the turpentine comes from the cryptæ of the bark; it is wholly soluble in water, like gum arabic, and supersedes its use in some few places. The mode in which this substance is commonly procured is remarkable. It occasionally happens that whole forests of Larch, in different parts of the Russian empire, are consumed by fire, either accidentally or wilfully ignited. During the combustion this gummy matter issues from the inner part of the trunk; it is diligently collected by the natives, who esteem it a delicate food. It is also supposed to be an antiscorbutic. Exudations also are found on these firs which resemble manna, instead of which they are used, under the name of *manna of Briancon*; but this manna is said not to have more than half the cathartic power of that of the East.

The inner bark, when boiled, mixed with rye-flour, and buried for a few hours in the snow, furnishes the hardy Siberian hunters with a ferment, which they use instead of leaven, when that substance is spoiled, as it frequently is, by the severity of the cold.

VENICE TURPENTINE, a produce of this species of pine, is generally esteemed the best of the juices called Turpentine, after that of *Pistachia Terebinthus*. It is usually thinner than any sort, of a pale yellowish colour, and of a hot, pungent, bitterish taste. It is said to remain always, or at least a very long time, in a state of liquidity; if it should at length become at all concrete, it is only on the edges, or sides of the vessel in which it may be contained. This property is adverted to by Pliny, *Lib. 16. c. 10*.

Besides Venice Turpentine, the Larch also yields the *Orenburg Gum*, of the Russian shops; and, although it is used in no other country, it is described as a good substitute for Gum Arabic. It is very glutinous, rather dry, of a reddish colour, and a sub-resinous taste; but wholly soluble in water. The mode in which this substance is obtained is very remarkable. It sometimes happens that whole forests of Larch, in some parts of the Russian empire, are accidentally consumed by fire. During the combustion of the medullary part of the trunks, a gum issues forth, which is diligently collected by the natives, for the purpose, not only of rendering their bows glutinous, but also of being eaten as a delicacy. It is also supposed to act as an anti-scorbutic, and a useful astringent for the gums.

MANNA OF THE LARCH (*Manna Larigna*. *Manne de Briancon*.) About the month of June, when the sap of the Larch is most luxuriant, it produces small white drops, of a sweet, glutinous matter, like Calabrian manna. This manna is collected by the peasants, who go very early in the morning to the forests, before the sun dissipates it, and lop off, with hatchets, the branches that bear it; carrying them afterwards to the shade, where they can collect the grains at their leisure. The Venetians have many different names for the varieties of it; and in Dauphiny it has been very generally employed as a laxative; but it is said to possess not more than half the strength of that which is yielded by the Calabrian ash.

In the Language of Flowers, the Larch is the emblem of boldness.



Astramaria Errembaultii.

ALSTRÆMERIA ERREMBAULTII.—ERREMBAULT'S ALSTRÆMERIA.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMARYLLIDACEÆ.—THE NARCISSUS TRIBE.

CHARACTER OF THE GENUS ALSTRÆMERIA. Perigonium corolla-like, superior, six-parted, and rather bell-shaped, regular, or somewhat two-lipped, interior leaflets the narrower, two somewhat tubulose at the base. Stamens six, inserted at the bottom of the perigonium, filaments erect, or declinate. Anthers ovate, erect. Ovarium inferior, three-celled. Ovula numerous in the cells, horizontal, anatropous. Style filiform, in the direction of the stamens, stigma trifid, lobes replicate. Capsule oblong, or globose, three to six ribbed, three-celled, three-valved, rarely an indehiscent berry. Seeds many, in the cells rather globose, horizontal, testa-membranaceous, rugose.

DESCRIPTION OF THE HYBRID ALSTRÆMERIA ERREMBAULTII. Stem round, about eighteen inches high, smooth. Involucral leaves about four, smooth, linear, lanceolate, acute, about two inches long, and a quarter of an inch broad. Peduncles about the length of the involucral leaves, round and smooth. Bracts smooth, linear, varying from an inch long, and three lines broad, to half an inch long, and a line and a half broad. Flowers about twelve, arranged in form of an umbel, about three inches in length, and two inches and a half in diameter, each peduncle bearing two, or rarely three, flowers. Leaflets of the perigone six, ovate, or obovate, more or less apiculate, smooth, the interior white, more or less painted of a delicate rose pink colour, and beautifully spotted with purple, or short purple streaks, the apicula is more or less of a delicate green colour; The exterior surface of the leaflet is of a deeper pink colour, and is not so much spotted or streaked as the interior surface, and has a large deep green blotch near the apex. Filaments six, declinate, shorter than the style, of a dark pink colour. Anthers yellow, oblong, innate, about one sixth the length of the stamens, two-celled, cells opposite, contiguous. Style about one sixth longer than filaments, smooth, and of the same colour as the stamens, and having the apex divided into three parts, each of which is reflexed; stigma minute. Germen ovate, or globular, smooth, with six deep furrows.

POPULAR AND GEOGRAPHICAL NOTICE. The Genus *Alstrœmeria* is composed of herbaceous plants with tuberous roots. They are exclusively inhabitants of South America, and that part of North America situate within the tropics. The whole of the species of this genus are peculiarly handsome, and well worthy of cultivation by those who delight in a collection of beautiful and showy plants. *Alstrœmeria Salsilla* is a plant of great beauty, and native of Peru. Its roots are cultivated in the West Indies in like manner as the potatoe with us, and are eaten by the inhabitants.

INTRODUCTION WHERE GROWN; CULTURE. The plant now figured, *Alstrœmeria Errebaultii*, is a hybrid, probably from *peregrina* or *psittacina*, and was first raised in the Belgium Garden. This is not a tribe of plants very difficult of culture. Many of the species require no protection, and may be planted out of doors, against a south wall, or in the front of a greenhouse, provided that the soil is both light and dry; in such a situation the following species have stood the severest of our winters, in the Birmingham Botanical Gardens, without having so much as a leaf injured. *Alstrœmeria acutifolia*, *pulchella*, *versicolor*, *Hookerii*, *tricolor*, and *psittacina*. The only protection there employed was to keep the soil well loosened on the surface. All the species may be propagated by division, but the best plants are raised from seeds.

DERIVATION OF THE NAME. *Alstrœmeria*, after Baron *Alstrœmer*, a Swedish botanist. *Errebaultii*, probably after the name of the person who raised it.

We have "hopes and fears" for the year at all seasons, as we have for ourselves "in infancy and throughout life." After the joyousness of summer comes the season of foreboding, for "the year has reached its grand climacteric, and is fast falling 'into the sere, the yellow leaf.' Every day a flower drops from out the wreath that binds its brow—not to be renewed. Every hour the sun looks more and more askance upon it, and the winds, those summer flatterers, come to it less fawningly. Every breath shakes down showers of its leafy attire, leaving it gradually barer and barer, for the blasts of winter to blow through it. Every morning and evening takes away from it a portion of that light which gives beauty to its life, and chills it more and more into that torpor which at length constitutes its temporary death. And yet October is beautiful still, no less 'for what it gives than what it takes away;' and even for what it gives during the very act of taking away.—The whole year cannot produce a sight fraught with more rich and harmonious beauty than that which the woods and groves present during this month, notwithstanding, or rather in consequence of, the daily decay of their summer attire; and at no other season can any given spot of landscape be seen to much advantage as a mere picture.—An extensive plantation of forest trees presents

a variety of colours and of tints that would scarcely be considered as *natural* in a picture, any more than many of the sunsets of September would. Among those trees which retain their green hues, the fir tribe are the principal; and these, spiring up among the deciduous ones, now differ from them no less in color than they do in form. The alders, too, and the poplars, limes, and horse-chestnuts, are still green,—the hues of their leaves not undergoing much change as long as they remain on the branches. Most of the other forest trees have put on each its peculiar livery; the planes and sycamores presenting every variety of tinge, from bright yellow to brilliant red; the elms being, for the most part, of a rich sunny umber, varying according to the age of the tree and the circumstances of its soil, &c.; the beeches having deepened into a warm glowing brown, which the young ones will retain all the winter, and till the new spring leaves push the present ones off: the oaks varying from a dull dusky green to a deep russet, according to their ages; and the Spanish chestnuts, with their noble embowering heads, glowing like clouds of gold.—As for the hedge rows, though they have lost nearly all their flowers, the various fruits that are spread out upon them for the winter food of the birds, make them little less gay than they were in spring and summer. The most conspicuous of these are the red hips of the wild rose; the dark purple bunches of the luxuriant blackberry; the brilliant scarlet and green berries of the nightshade; the wintry-looking fruit of the hawthorn; the blue sloes, covered with their soft tempting-looking bloom; the dull bunches of the woodbine; and the sparkling holly-berries. We may also still, by seeking for them, find a few flowers scattered about beneath the hedge-rows, and the dry banks that skirt the woods, and even in the woods themselves, peeping up meekly from among the crowds of newly fallen leaves. The prettiest of these is the primrose, which now blows a second time. But two or three of the persicaria tribe are still in flower, and also some of the goosefoots. And even the elegant and fragile heathbell, or hare-bell, has not yet quite disappeared; while some of the ground flowers that have passed away have left in their place strange evidences of their late presence; in particular, the singular flower (if it can be called one) of the arums, or lords and ladies, has changed into an upright bunch, or long cluster, of red berries, starting up from out the ground on a single stiff stem, and looking almost like the flower of a hyacinth. The open fields during this month, though they are bereaved of much of their actual beauty and variety, present sights that are as agreeable to the eye, and even more stirring to the imagination, than those which have passed away. The husbandman is now ploughing up the arable land, and putting into it the seeds that are to produce the next year's crops; and there are not, among rural occupations, two more pleasant to look upon than these: the latter, in particular, is one that while it gives perfect satisfaction to the eye as a mere picture, awakens and fills the imagination with the prospective views which it opens. It is not till this month that we usually experience the equinoctial gales, those fatal visitations which may now be looked upon as the immediate heralds of the coming on of winter; as in the spring they were the sure signs of its having passed away. Bitter-sweet, is it, now, to lie awake at night, and listen wilfully (as if we would not let them escape us) to the fierce howlings of the winds, each accession of which gives new vividness to the vision of some tall ship, illumined by every flash of lightning—illumined, but not rendered *visible*—for there are no eyes within a hundred leagues to look upon it; and crowded with human beings, every one of which sees, in imagination, his own grave a thousand fathom deep beneath the dark waters that roar around!

It is as combining the decline of the *day* with that of the *year*, the period both of beauty and decay, that an *Evening in Autumn* becomes so generally the parent of ideas of a solemn and pathetic cast. Not only, as in the first of these instances, do we blend the sun-set of physical with that of moral being, but a further source of similitude is unavoidably suggested in the failure and decrepitude of the dying year, a picture faithfully, and in some points of view, mournfully emblematic of the closing hours of human life.

With the daily retirement of the sun, and the gradual approach of twilight, though circumstances, as we have seen, often associated in our minds with the transitory tenure of our mortal existence, there are usually connected so many objects of beauty and repose as to render such a scene in a high degree soothing and consolatory; but with the customary decline of light are now united the sighing of the coming storm, the edying of the withered foliage;

for now the leaf
 Incessant rustles from the mournful grove;
 Oft startling such as, studious, walk below,
 And slowly circles through the waving air.
 But, should a quicker breeze amid the boughs
 Sob, o'er the sky the leafy deluge streams;
 Till choak'd, and matted with the dreary shower,
 The forest-walks, at every rising gale,
 Roll wide the wither'd waste, and whistle bleak.

These are occurrences which so strongly appeal to our feelings, which so forcibly remind us of the mutability of our species, and bring before us, with such impressive solemnity, the earth as opening to receive us, that they have, from the earliest period of society, and in every stage of it, been considered as typical of the brevity and destiny of man.

Like leaves on trees the race of man is found,
 Now green in youth, now withering on the ground;
 Another race the following spring supplies;
 They fall successive, and successive rise;
 So generations in their course decay;
 So flourish these, when those are pass'd away;



Convallaria Majalis.

CONVALLARIA MAJALIS.—THE LILY OF THE VALLEY.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SMILACEÆ—THE SMILAX TRIBE.

CALYX none. Stalk naked, semi-cylindrical; cluster simple; flowers drooping, cup-shaped.—Leaves two, radical, elliptical, ribbed, stalked, pale green: flowers white, elegant, sweet-scented: berry scarlet. Perennial: flowers in May: grows in woods and on heaths.

Of the Lily of the Valley, called also Lily Convally, and May Lily, and, in some country villages, Ladder to Heaven;—in French, *le muguet*; *lis des vallées*; *muguet de Mai*: in the village dialect, *gros mouguet*: in Italian, *il mughetto*; *giglio convallio* [lily convally]; *giglio delle convalli*—there are three species: the Sweet-scented, the Grass-leaved, and the Spiked. The first is a native of Britain and many other parts of Europe. It flowers in May: whence it has been named by some the May Lily. Gerarde calls it Convall Lily, and says that in some places it is called Liriconfancie. It is also called May-blossom.

“The Lily of the Valley,” says Mr. Martyn, “claims our notice both as an ornamental and a medicinal plant. As an ornamental one, few are held in higher estimation: indeed, few flowers can boast such delicacy, with so much fragrance. When dried they have a narcotic scent, and, reduced to powder, excite sneezing. A beautiful and desirable green colour may be prepared from the leaves with lime.” The distilled water is used in perfumery.

There are several varieties of this species: one with red flowers, one with double red, and one with double white blossoms. There is also a variety much larger than the common sort, and beautifully variegated with purple. It was brought from the Royal Garden at Paris, and flowered several years in the Chelsea Garden: but the roots do not increase so much as the other varieties.

The Lily of the Valley requires a loose sandy soil and a shady situation. It is increased by parting the roots in autumn, which should be done about once in three years. They may be gently watered every evening in dry summer weather. When the roots of this plant are confined in a pot, it may also be increased by its red berry; but in the woods, where the roots are allowed to spread, it seldom produces the berry. The other species of the Lily of the Valley are natives of Japan.

Thunberg mentions one called the *Convallaria Japonica*; of which, he says, the knobs at the root were preserved in sugar, and were highly commended by the Japanese and the Chinese as good in different disorders.

“No flower amid the garden fairer grows
Than the sweet lily of the lowly vale,
The queen of flowers.”
—————“And valley-lilies whiter still
Than Leda’s love.”

KEATS’S ENDYMION, p. 10.

“The lily, silver mistress of the vale.”

CHURCHILL.

Of the Solomon’s-seal—called in French *le sceau de Salomon*; *le signet de Salomon*; *l’herbe de la rupture* [rupture-wort]; *le genouillet*: Italian, *il ginocchio*; *sigillo di Salomone*—there are seven species, and varieties of each: the Narrow-leaved, the Single-flowered, the Broad-leaved, the Many-flowered, the Cluster-flowered, the Star-flowered, and the Least Solomon’s-seal, or One-blade.

“The root of the Single-flowered species,” says Mr. Martyn, “is twisted and full of knots. On a transverse section of it, characters appear that give it the resemblance of a seal: whence its name of Solomon’s-seal.” It is also called White-root.

The roots of this and the Broad-leaved kind have, in times of scarcity, been made into bread; and the young shoots of the latter species are eaten by the Turks as we eat asparagus. All the species are elegant plants. They are hardy; and, in a light soil and a shady situation, increase very fast by the roots. The best time to transplant them, and to part the roots, is in autumn, soon after the stalks decay. They should not be removed oftener than every third year; but should have fresh earth, as deep as it can be changed without disturbing the roots, every spring. The earth should be kept moderately moist.

Gerarde gives a curious account of the virtues of these plants; not, however, of so much importance to the female sex, in the present day, as it might have been in his time: “The roote of Solomon’ Seale stamped, while it is freshe and greene, and applied, taketh away in one night, or two at the most, any bruse, black or blew spots gotten by fals or women’s wilfulnesse, in stumbling upon their hasty husbands’ fists, or such like.”

There is something delightfully fresh and cool in the appearance of these Lilies; of which the flowers are so pleasantly shaded by their large green leaves, that one wishes one's-self a fairy to lie in them, like Ariel in the bell of the cowslip:—

“Where the bee sucks, there lurk I;
In a cowslip's bell I lie.”

It is to these Mr. Hunt alludes in one of his poems, where he seems revelling to his heart's delight among all the sweets of spring:—

“Lilacs then, and daffodillies,
And the nice-leaved lesser lilies,
Shading, like detected light,
Their little green-tipt lamps of white.”

The Author of the ‘*Mirror of the Months*,’ calls them the “little illumination lamps,” and truly in their form they closely resemble the objects of his comparison. Hidden between their broad green leaves, and blooming unseen in the retired woodlands, we are accustomed, even from our childhood, to regard the lily of the valley as an emblem of modesty. A little poem written for the very young reader, but equally suitable to others, says of this beautiful spring flower:—

See the lily on its bed,
Hanging down its modest head,
While it scarcely can be seen,
Folded in its leaf of green;

Yet we love the lily well,
For its sweet and pleasant smell,
And would rather call it ours
Than a thousand gayer flowers.

Shakspeare alludes to its drooping posture:—

Shipwreck'd upon a kingdom where no pity,
No friends, no hope, no kindred weep for me,—
Almost no grave allowed me! like the lily
That once was mistress of the field and flourish'd,
I'll hang my head and perish.

Very few are the floral beauties which deck the barren hills and plains of Norway; yet Mr. Inglis says of the lily of the valley in that country, “It stood everywhere around, scenting the air, and in such profusion, that it was scarcely possible to step without bruising its tender stalks and blossoms. I have not seen this flower mentioned in any enumeration of Norwegian plants, but it grows in all the western parts of Norway, in latitude 59° and 60° wherever the ground is free from forest, in greater abundance than any other wild flower.”

It is rather singular that the fragrance of this flower, which is, while the plant is fresh, remarkable only for its sweetness, possesses, when dried, a powerfully narcotic influence. The root too of the wood-lily is extremely bitter. In Germany the flowers are made into wine.

The “*Mirror of the Months*,” a pleasing volume published in the autumn of 1825, and devoted to the service of the year, points to the appearance of nature at this time:—“The last storm of autumn, or the first of winter, (call it which you will) has strewed the bosom of the all-receiving earth with the few leaves that were still clinging, though dead, to the already sapless branches; and now all stand bare once more, spreading out their innumerable ramifications against the cold grey sky, as if sketched there for a study by the pencil of your only successful drawing-mistress—nature.

“Of all the numerous changes that are perpetually taking place in the general appearance of rural scenery during the year, there is none so striking as this which is attendant on the falling of the leaves; and there is none in which the unpleasing effects so greatly predominate over the pleasing ones. To say truth, a grove denuded of its late gorgeous attire, and instead of bowing majestically before the winds, standing erect and motionless while they are blowing through it, is ‘a sorry sight,’ and one upon which we will not dwell. But even this sad consequence of the coming on of winter (sad in most of its mere visible effects,) is not entirely without redeeming accompaniments; for in most cases it lays open to our view objects that we are glad to see again, if it be but in virtue of their association with past years; and in many cases it opens vistas into sweet distances that we had almost forgotten, and brings into view objects that we may have been sighing for the sight of all the summer long. Suppose, for example, that the summer view from the windows of a favourite sleeping-room is bounded by a screen of shrubs, shelving upwards from the turf, and terminating in a little copse of limes, beeches, and sycamores; the prettiest boundary that can greet the morning glance when the shutters are opened, and the sun slants gaily in at them, as if glad to be again admitted. How pleasant is it, when (as now) the winds of winter have stripped the branches that thus bound in our view to spy beyond them, as if through network, the sky-pointing spire of the distant village church, rising from behind the old yew-tree that darkens its portal; and the trim parsonage beside it, its ivy-grown windows glittering perhaps in the early sun! Oh, none but those who will see the good that is in every thing, know how very few evils there are without some of it attendant on them, and yet how much of good there is unmixed with any evil!”

In the Language of Flowers, the Lily of the Valley is the emblem of return of Happiness.



Cydonia oblongifolia.

PYRUS CYDONIA, VEL CYDONIA VULGARIS.—THE QUINCE TREE.

CLASS XII. ICOSANDRIA.—ORDER IV. PENTAGYNIA.

NATURAL ORDER, POMACEÆ.—THE APPLE TRIBE.

FIG. (a) section of the fruit; (b) a seed.

THE Quince-tree is a native of the rocky banks of the Danube, and is naturalized in the hedges of Germany. Dr. Sibthorp found it wild in the northern parts of Greece, in which country it still retains the ancient name *κυδωνία*, so called from Cydon, a town in Crete, where it grew. Thunberg found it growing in Japan, where it is called *umbats*. It was among the first of the exotic fruits cultivated in England, where it blossoms in May or June, and ripens its fruit in November.

The tree is of low growth, much branched, and generally distorted. The leaves are roundish or ovate, entire, varying in size, smooth, and of a dusky green colour above, paler and downy beneath, and stand upon short foot-stalks. The flowers are large, solitary, and of a pale rose-colour, or white; the calyx is superior, villous, persistent, and divided into five spreading segments: the corolla is composed of five petals; these are concave, roundish, and inserted into the calyx: the filaments are about twenty, awl-shaped, shorter than the corolla, and support yellow anthers: the germen is orbicular, with five slender styles, and simple stigmas. The fruit is large, varying in shape, yellow, downy, umbilicated, and when ripe has a peculiar fragrant odour, and a very austere acidulous taste; each of its cells contains two or three ovate, angular, reddish brown, cartilaginous seeds, ranged horizontally.

There are different varieties of the fruit: as the globular, or apple-quince; oblong, or Portugal quince; and the pear-shaped, or pear-quince. The Portugal quince is the best, but the fruit is produced sparingly. The quince-tree is propagated by layers, by suckers, or by cuttings. It thrives best in a moist soil, but the fruit is superior in a dry one. The quince is supposed by some persons to be the golden apple of the Hesperides, so famous in ancient fable.

From the largeness of this fruit, and its splendid colour, it is not improbable that it was the same with the apples of the Hesperides; for Galesio, in his treatise on the orange, has shewn that the orange tree was unknown to the Greeks, and that it did not naturally grow in those parts where the gardens of the Hesperides were placed by them. The fruit of the quince, however useful and ornamental it may be in some respects, does not warrant such honours, and in truth has not continued to receive them; for the French, who have paid great attention to its cultivation, particularly for grafting pears upon its stocks, call the quince-tree "*coignassier*," probably, according to Duhamel, because the disagreeable odour of the fruit requires that it should be placed in a corner (*coin*) of the orchard or garden. In the south of France, particularly on the borders of the Garonne, the quince is very extensively grown; and the peasants prepare from it a marmalade which they call *cotignac*. The term marmalade is derived from the Portugese name for the quince, *marmelo*. Gerard says, that in his time quince-trees were planted in the hedges of gardens and vineyards; and marmalade, two centuries ago, seems to have been in general use, principally from a belief that it possessed valuable medicinal properties.

QUALITIES AND USES.—The seeds are inodorous, nearly insipid, and abound with an impure mucilage, which they yield to boiling water. One drachm makes six ounces of a nearly colourless transparent mucilage, resembling in consistency the white of egg; which is occasionally prescribed as a demulcent in gonorrhœa, tenesmus, dysentery, and in apthous affections and excoriations of the mouth and fauces; in the latter case it is generally combined with borax and honey. A diluted solution of it injected beneath the eye-lids is recommended by Dr. Thompson, for obtunding the acrimony of the discharge in violent inflammations of the eye. It is the most agreeable of all the mucilages; but is apt to spoil and become mouldy in a short time.

In its raw state the fruit is not eatable; but when prepared, it becomes mild, and to many persons

highly grateful. A small portion of it added to stewed or baked apples is useful for giving pungency and flavour. The expressed juice taken in small quantities is cooling, antiseptic, and astringent, useful in nausea and vomiting, as well as in some kinds of diarrhoea; by boiling, it loses its astringency. Formerly the juice was directed in the London Pharmacopœia to be made into a syrup; but the only preparation of the quince which it now directs, is the decoction of the seeds. An elegant sweetmeat or marmalade (*Miva cydoniarum*) is prepared by boiling the pulp over a gentle fire with an equal weight of sugar.

OFF. PREP.—Decoctum Cydoniæ, L.

“Chill is thy breath, pale autumn,” sings the poet, though, had not poets called this season pale, we might have termed it the rosy, or the golden autumn. The berries which hang about the autumn trees may vie with the blackness of the jet, or the redness of the coral or ruby. There are the berries of the briony and the honeysuckle, of a deep and soft red; and the more brilliant scarlet clusters of the common nightshade; and the glossy red bunches of the dogwood; and the mountain-ash; and the wayfaring-tree; and all the numerous hips and haws, upon which revel the merry songsters, and the meek woodmouse, and the many little creatures for whom a feast has been spread with a liberal hand. A deep yellow tint is also the predominating colour among autumn flowers, almost all our native blossoms at this season having either some tinge of redness, or wearing that deep yellow in which, as the Chinese say, the sun loves to array himself; while the deep and varied colour of the wild wood and the shrubbery, delight the artist and the lover of nature, who pause in their walks to mark, in the foliage, the rich green tint, the bright yellow, the brown, or the crimson.

Our native plants often display a considerable degree of this latter hue upon their stems and leaves at the decline of the year. Some few, like the red-cornel, have their foliage altogether red; others have here and there,

“The one red leaf, the last of its clan,
That dances as often as dance it can;
Hanging so light, and hanging so high,
From the topmost twig that looks up at the sky.”

In the early ages of Christianity the custom prevailed of carrying evergreens with the corpse to the burial-ground, and depositing them in the grave; implying that the soul was ever-living, and that the body, though now cut down, should spring up again, in eternal youth and beauty, at the day of the resurrection. When the ancient Jews returned from the ceremony of placing their friends in the house for all living, as they expressively called their place of interment, they were accustomed to pluck off the grass two or three times, and, throwing it behind them, to exclaim in the words of the Psalmist, “They shall flourish out of the city like grass upon earth.” This practice appears to refer to the resurrection of the bodies of the departed.

The Hindoos place flowery offerings on the shrines of their deities; and Forbes, in his *Oriental Memoirs*, thus speaks of an interesting custom, “In the Mahommedan cemeteries of Guzerat are displayed the amiable propensities of the female character. To those consecrated spots the Mahommedan matrons repair, at stated anniversaries, ‘with fairest flowers to sweeten the sad grave.’ The grand tombs are often splendidly illuminated, but the meanest heap of turf has its visitors, to chant a requiem, light a little lamp, suspend a garland, or strew a rose, as an affectionate tribute to departed love or separated friendship.”

The Turks in their burying-places, which they call “Cities of Silence,” perforate the slabs which cover their graves, and through these openings spring beautiful flowers, which shed their sweets around. These flowers are carefully tended and kept from weeds by the Turkish females. The cypresses, too, with their dark gloomy foliage, mingle with other trees, and by their odour counteract the unpleasant effects which cemeteries in hot climates are so apt to produce, when the coffinless dead are buried at but little depth from the surface of the ground.

The Chinese plant flowers and shrubs about the places destined for the last reception of their families; and in many instances approach them through avenues of beautiful and lofty trees. The Germans place upon every grave little clusters of primroses, violets, lilies, and forget-me-nots. The celebrated cemetery of Père la Chaise at Paris presents much of picturesque beauty in its arrangement; and yet the bereaved mourner would generally feel more willing that the remains of his friend should lie in the peaceful churchyard of the village, than in a spot so much visited by the gay and thoughtless.



Begonia Martiana.

BEGONIA MARTIANA.—VON MARTIUS' ELEPHANT'S EAR.

CLASS XXI. MONŒCIA.—ORDER VI. POLYANDRIA.

NATURAL ORDER, BEGONIACEÆ.*

GENERIC CHARACTERS.—Male flowers—Calyx wanting. Corolla polypetalous. Petals commonly four, unequal. Female flowers—Calyx wanting. Corolla with from four to nine petals, generally unequal. Styles three, bifid. Capsule triquetrous, winged, three-celled, many seeded.

SPECIFIC CHARACTER.—Plant a perennial. Stem smooth, striated, semi-translucent, covered with a thin glaucous bloom. Leaves obliquely ovate, deeply and unequally indented at the margins, smooth, shining green. Petioles longer than the leaves. Peduncles usually two-flowered, more than twice as long as the pedicel. Flowers large, rich crimson purple. Petals serrated at the edges.

With the exception of *B. coccinea*, and one mentioned by Mr. Hartweg, there is perhaps no species of *Begonia* yet known that produces flowers of a finer colour than the present. Most of the members of the genus have blossoms varying from a pure white to a pale blush; but in the species before us, we have a rich and delicate crimson pink.

It is a plant of perennial duration, with tuberous roots, which demand considerable care and watchfulness to preserve their vitality through the winter. The stems are beautifully striated and transparent, like those of the Balsam, and are clothed with neat foliage of a rather diminutive size. The blossoms are large, and sufficiently abundant to impart a most inviting aspect; and the smallness of the leaves only becomes a fault when the plant is kept in a dry atmosphere, or otherwise mismanaged during the growing season.

We have little to communicate respecting its native country. It is said to be a production of Brazil; from whence, according to our Botanical Catalogues, it was transmitted to England in 1829.

Like many of its congeners it soon betrays the effects of injudicious or careless treatment. We point to this, more especially, because its attractiveness is so intimately connected with, and dependent upon, a highly cultivated state, that it elicits little admiration in a converse condition. Under unfavourable circumstances, the branches become straggling and attenuated, the internodes lengthen without acquiring a corresponding vigour, and if flowers are formed at all, they are scanty both in numbers and magnitude.

To enable it to form a compact spreading specimen, three or four principal stems should be allowed in a pot; these, under genial culture, will reach nearly eighteen inches in height, and to make a good specimen, they should measure nearly as much across. It is necessary to be circumspect in the application of water at the commencement of growth, for the young shoots are then extremely susceptible of injury from a surplus of moisture: but as the plant acquires the full renewal of its vegetative activity, copious supplies will be required almost daily. A stove or warm pit with bottom-heat, screened from the glare of the mid-day sun, will be the fittest place till the flowers begin to form, when it may be removed to an intermediate house, where more light is admitted.

The wood-path is carpeted over with leaves,
The glories of Autumn decay;
The Goddess of Plenty has bound up her sheaves,
And carried the harvest away,

With dissonant guns, hills and valleys resound,
The swains through the coppices rove;
The partridges bleed on the dry stubble ground,
The pheasants lie dead in the grove.

Gloomy as this month usually is, yet there are some intervals of clear and pleasant weather; the mornings are occasionally, sharp, but the hoarfrost is soon dissipated by the sun, and a fine open day follows.

A few soft days succeed
Of pleasing mildness; but the varying storm
By fits prevails, or, wrapped in terror, whirls
The last, the lingering honours from the grove.

The trees are now stripped of their foliage. The separation of their leaves from their branches is termed the fall: and in north America, the season in which this takes place is universally known by that name. The falling of leaves is not always in consequence of the injuries of autumnal frosts, for some trees

* We are indebted to that charming work the Magazine of Botany for the figure and description.

have their appropriate period of defoliation, seemingly independent of external causes. The lime (*tilia europæa*) commonly loses its leaves before any frost happens; the ash seems, on the contrary, to wait for that event; and at whatever period the first rather sharp frost takes place, all its leaves fall at once. The fall of the leaf can be considered only as a "sloughing or casting off diseased or worn-out parts," whether the injury to their constitution may arise from external causes or from an exhaustion of their vital powers. Hence a separation takes place, either in the foot-stalks, or more usually at its base, and the dying part quits the vigorous one, which is promoted by the weight of the leaf itself, or by the action of autumnal winds upon its expanded form. Sometimes, as in the horn beam, the beech, and some oaks, the swelling of the buds for the ensuing season is necessary to accomplish the total separation of the old stalks from the insertion.

How fall'n the glories of these fading scenes!
The dusky beech resigns his vernal greens;
The yellow maple mourns in sickly hue,
And russet woodlands crown the dark'ning view.
Dim, clust'ring fogs involve the country round;
The valley, and the blended mountain ground,

Sink in confusion: but with tempest wing,
Should Boreas from his northern barrier spring,
The rushing woods with deaf'ning clamour roar,
Like the sea tumbling on the pebbly shore:
When spouting rains descend in torrent tides,
See the torn zig-zag weep its channelled sides. WHITE.

Leaves undergo very considerable changes before they fall; ceasing to grow for a very long time previous to their decay, they become gradually more rigid and less juicy, often parting with their pubescence, and always changing their healthy green colour to more or less of a yellow, sometimes a reddish hue. "One of the first trees that becomes naked is the walnut; the mulberry, horse-chesnut, sycamore, lime, and ash, follow. The elm preserves its verdure for some time longer; the beech and ash are the latest deciduous forest trees in dropping their leaves. All lopped trees, while their heads are young, carry their leaves a long while. Apple-trees and peaches remain green very late, often till the end of November: young beeches never cast their leaves till spring, when the new leaves sprout, and push them off; in the autumn, the beechen leaves turn of a yellow deep chestnut colour.

The effect of a "whirl blast," or sudden gust of wind, accompanied with hail (not unfrequent at this season,) on the falling leaves, is thus prettily and naturally delineated by the poet of the mountains:—

But see! where'er the hailstones drop,
The withered leaves all skip and hop;
There's not a breeze—no breath of air—
Yet here, and there, and every where,
Along the floor, beneath the shade,
By those embowering hollies made,

The leaves in myriads jump and spring,
As if with pipes and music rare
Some Robin Goodfellow were there,
And all those leaves in festive glee
Were dancing to the minstrelsy.

WORDSWORTH.

A tree has ever been considered as an *emblem of life*; and in this view, this pleasing object in nature, which we meet with in every direction, is replete with instruction. The contemplative mind regards it with peculiar interest, and derives from it no inconsiderable improvement. The elegant 'Gilpin' has availed himself of this striking resemblance in the following beautiful reflections:—

"As I sat carelessly at my window (he observes,) and cast my eyes upon a large acacia which grew before me, I conceived that it might aptly represent a country divided into *provinces, towns, and families*. The large branches might hold out the first—the smaller branches connected with them, the second—and those combinations of collateral leaves which specify the acacia might represent families composed of *individuals*. It was now late in the year, and the autumnal tints had taken possession of great part of the tree.

As I sat looking at it, many of the yellow leaves (which having been produced earlier, decayed sooner) were continually dropping into the lap of their great mother. Here was an emblem of *natural decay*—the most obvious appearance of mortality.

As I continued looking, a gentle breeze rustled among the leaves. Many fell, which in a natural course might have enjoyed life longer. Here *malady* was added to decay.

The blast increased, and every branch which presented itself bowed before it. A shower of leaves covered the ground. The cup of retribution, said I, is poured out upon the people. Pestilence shakes the land. Nature sickens in the gale; they fall by multitudes. Whole families are cut off together.

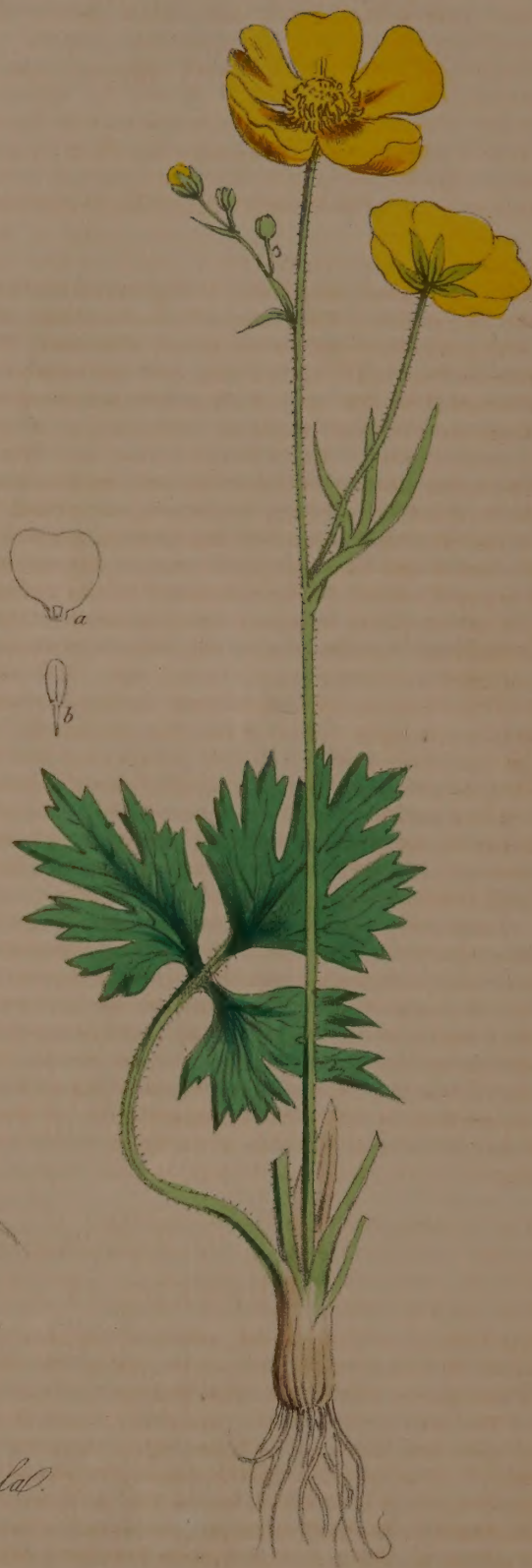
Among the branches was one entirely withered. The leaves were shrivelled, yet clinging to it. Here was an emblem of *famine*. The nutriment of life was stopped. Existence was just supported, but every form was emaciated.

In the neighbourhood stretched a branch not only shrivelled and withered, but having been more exposed to winds, it was almost entirely stripped of its leaves. Here and there hung a solitary leaf just enough to show that the whole had lately been alive. Ah! said I, here is a emblem of *depopulation*. Some violent cause hath laid waste the land. Towns and villages, as well as families, are desolated; scarcely ten are left alive to bemoan thousands.

How does every thing around us bring its lesson to our minds! *Nature is the great book of God*. In every page is instruction to those who will read. Mortality must claim its due. Death in various shapes hovers round us,—Thus far went the heathen moralist. He had learned no other knowledge from these perishing forms of nature, but that men, like trees, are subject to death."



Ranunculus Flammula.



RANUNCULUS ACRIS.—UPRIGHT MEADOW CROWFOOT.

CLASS XIII. POLYANDRIA.—ORDER VII. POLYGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

FIG. (a) represents a single petal detached to show the nectary; (b) a stamen with its anther.

AMONG the numerous species of vegetables, natives of Britain, few are more familiarly known than those of the Ranunculi. They are herbaceous plants, all or at least most of them, possessing acrid qualities, and generally affecting cold or temperate climates. Sixty one species are enumerated by Willdenow in the 14th edition of *Systema Vegetabilium*, but the number has of late been considerably augmented, and now nearly two hundred are known. Fifteen are natives of our island; and of these the two species figured, and the *bulbosus* are the most common, occupying a considerable space in rich pastures, and propagating themselves with great facility. Early in the spring, and during the greater part of the summer, the flowers occur everywhere; hence the farmer and the horticulturist are continually employed in their destruction, for they contribute little or nothing to the support of man and the larger quadrupeds.

The root of the *Ranunculus acris*, is perennial and somewhat bulbous, with several long simple fibres. The stem is two feet high, erect, round, hollow, leafy, beset with minute hairs, branched towards the top, and many-flowered. The radical leaves are oblong, upright, hairy, footstalks, in three or five deep lobes, which are variously subdivided and toothed. The leaves on the stem are of the same structure; divided into fewer and narrower segments; the uppermost are much smaller, and cut into three linear entire lobes, or sometimes entirely simple and linear. The stalk and branches are terminated by bright yellow flowers, one or two together on round even stalks, covered with close hairs, and *not* furrowed. The calyx is pale greenish-yellow, or coloured like the corolla, and formed of five ovate, concave, spreading deciduous leaves, which are clothed with a downy pubescence and tipped at the apex with a dark brown spot. Within the calyx are five obtuse petals, polished on their inner surface, and furnished at the base with the nectary, which is a small pore, covered by a scale. The filaments are numerous, (from forty-eight to ninety-three,) not half the length of the petals, with oblong heart-shaped stigmas. In the centre of the corolla are many germens, collected into a head, and each furnished with a small reflected stigma. The akenia are lenticular, smooth, with a small, slightly curved point.

Linnaeus gave this species the name "*Acris*," on account of its being supposed to be acrid and poisonous in an eminent degree. Mr. Curtis says, "that even pulling up the plant, and carrying it some little distance, has produced a considerable inflammation in the palm of the hand; that cattle in general will not eat it, but that sometimes, when they are turned in a hungry state into a new field of grass, or have but a small spot to range in, they will feed on it, whereby their mouths become sore and blistered. According to Linnaeus, sheep and goats eat it; but kine, horses, and swine refuse it. When made into hay it loses its acrid quality; but then it seems to be too starchy and hard to afford much nourishment; if it be of use, it must be to correct, by its warmth, the insipidity of the grasses." It has been supposed to act as a condiment, and hence to be serviceable when taken in moderate quantities along with other more bland and nutritious herbs.

RANUNCULUS FLAMMULA.

LESSER SPEAR-WORT CROWFOOT.

THIS species of *Ranunculus*, which is commonly called in English the small or lesser Spear-wort, grows plentifully throughout Europe, in marshy places, and especially in the wet and more boggy parts of heaths and commons, where it flowers during most part of the summer.

The root is perennial, consisting of several long simple fibres, issuing from the lower joints of the stem. The stem is a foot high or more, often reclining partly, or entirely decumbent at the base; branched, leafy, round, hollow, smooth, and frequently tinged with purple. The whole plant is generally smooth, except a variety the leaves of which are said to be hairy at the edges, and the upper part of the stem is sometimes a little downy. The radical leaves are ovate-lanceolate, pointed at each end, standing on long foot-stalks, which are hollow on one side and flattened; those on the stalk lanceolate, alternate, standing on shorter foot-stalks, which are dilated and sheathing at the base; the uppermost, and those next the flowers, linear; all of them smooth, sometimes perfectly entire or more or less toothed. The flowers are terminal as well as opposite

to the leaves, and stand on round erect stalks, without bracteas. The corolla is of a bright yellow colour, composed of five roundish, somewhat concave, heart-shaped petals, with short claws and a very minute nectary. The Calyx consists of five ovate, obtuse, slightly villous, concave, yellowish, deciduous leaves. The stamens are numerous, and the other parts of the flower resemble those of the preceding species.

GENERAL QUALITIES OF THE RANUNCULI.—The roots of the *R. bulbosus* appear to consist of albumen, mixed with ligneous fibre. If the root be macerated in cold water, it gives a solution of this substance, which coagulates in floccules on the application of heat; and undergoes the same process slowly on the admixture of alcohol. The juice of some yield nitric acid; but the most interesting constituent in most of the species of ranunculus is the acrid principle, which pervades every part of the plant in its green state. Like the acrimony of the arum, it is volatile, and disappears in drying, or upon the application of heat. It differs, however, in not being destroyed by a moderate heat, and in being fully preserved by distillation. Professor Bigelow subjected various species of this family to this experiment, and always found the distilled water to possess a strong acrimony: while the decoction, and portions of the plant remaining in the retort, were wholly destitute of this property. This distilled water, when first taken into the mouth, excited no particular effect; but after a few seconds, a sharp, stinging sensation was produced. When swallowed, a great sense of heat took place in the stomach. Some distilled water of the *R. repens*, was kept in a close-stopped phial for several months, and retained its acrimony undiminished. In winter time it froze, and on thawing lost this property.

PROPERTIES AND MEDICAL USES, &c.—Both ancient and modern writers on botany, and materia medica, agree in attributing to many species of the genus *Ranunculus* a corrosive and poisonous quality. In several, it abounds in such a degree as, when applied externally, in a recent state, to excite vesications, and ulceration of the parts, which often assume a malignant or gangrenous disposition; and taken internally they prove poisonous, by inducing vomiting, inflammation of the stomach, and the usual consequences of acrid poisons. These qualities, according to Dr. Pulteney, are particularly manifest in the recent plant, while in its highest vigour before flowering; and more intensely in the germen of the flower itself, and in the petals of some.

The poisonous species that are indigenous and common in England, are the *R. Flammula*; *R. bulbosus*; *R. acris*; *R. sceleratus*; and the *R. arvensis*; Of these the *Flammula*, *bulbosus* and *sceleratus*, are judged to be the most acrimonious.

Before the introduction of *Cantharides*, the acrid Ranunculi were all, in their turn, used as vesicatories, and Haller tells us, that the *R. flammula* is still in use as such in some parts of France: and as the two species we have figured have obtained places in the materia medica of the Dublin college, we suppose they are intended to be employed for this purpose amongst the paupers of Ireland. Gilibert assures us, that the *R. bulbosus* vesicates with less pain than the Spanish *flies*. He therefore gives it a decided preference as an epispastic. Other authors allow these properties in the Ranunculi; and state that they exert their effects sooner than the *Cantharides*; but as their action is uncertain, and as many instances are recorded by Murray and others, of their producing ill-conditioned ulcers, they are not employed in this country. The latter author states, that a slice of the fresh root of *R. bulbosus* placed in contact with the inside of the finger, brought on a sense of pain in two minutes. When taken off, the skin was found without redness, and the sense of heat and itching ceased. In two hours, however, it returned again, and in ten hours a full serious blister was raised. This was followed by an ulcer of bad character, and difficult to heal. He remarks, that if the application is continued after the first itching, the pain, and subsequent erosion are much greater. And it is a well-known fact, that soldiers, and mendicants, often resort to these plants to produce ulcers on their legs; the former to procure their discharge, and the latter to excite commiseration.

With a view to their external stimulation they have been used advantageously in rheumatism, in hip disease, hemiplegia, and fixed pains of various descriptions. Amongst the old practitioners who have recorded instances of their effects, are Baglivi, Stork, and Sennertus. A curious practice formerly prevailed in several countries of Europe, of applying the ranunculus to the wrists, or fingers, for the cure of intermittent fevers. This is mentioned by Van Swieten, Tissot, and some others. In *hemiplegia* it was applied to the head, and in this case did not produce a discharge, nor break the skin; but occasioned tumefaction of the hairy scalp. Chesnau, quoted by Murray, advises that the ranunculus be applied to a small surface only, and through a perforation of adhesive plaster, to keep it from spreading. From want of this caution, he had known extensive inflammation to arise, and spread over a great part of the face, neck, and breast.

The burning sensation which the Ranunculi excite in the mouth when chewed, extends, as we have already observed to the stomach, if they are swallowed. Krapf states, that a small portion of a leaf, or flower of *R. sceleratus*, or two drops of the juice, excited acute pain in the stomach, and a sense of inflammation in the throat. He gave a quantity of the juice to a dog, which produced vomiting and great distress; and the animal being killed, was found to have the stomach inflamed and contracted.





Rhamnus catharticus.

RHAMNUS CATHARTICUS.—THE BUCKTHORN.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, RHAMNEÆ.—THE BUCKTHORN TRIBE.

FIG. (a) represents a male flower; (b) female flower; (c) a stamen; (d) the fruit; (e) the section of a berry, showing the four cells; (f) the seed.

BUCKTHORN is, perhaps, as well known among herbalists and rustic practitioners as any indigenous medicinal plant of Great Britain. It has been long celebrated for the cathartic qualities of its berries, which are gathered by the common people in some places in considerable quantities, and the juice expressed for the use of the apothecaries. It grows wild in hedges, groves, and thickets, flowering in May, and ripening its fruits in September. It is rather uncommon in the neighbourhood of London; but Dr. Milne found it in some lanes betwixt Plumstead and East Wickham; in a chalk-pit betwixt Gravesend and Chatham, and in copses above Purfleet. We have also observed it in great abundance in the hedges near Thames Ditton; and Mr. W. Anderson, of the Botanic Garden, Chelsea, informs us it grows plentifully about Norwood, in Surrey.

Buckthorn is a shrub, which rises to the height of seven or eight feet, with a smooth dark-brown bark, and yellowish wood. The branches are alternate, or nearly opposite, spreading, and each terminating in a strong spine, after the first year. The leaves are simple, entire, ribbed, smooth, finely serrated, and of a bright green colour; the earlier ones downy, and in tufts from the flowering buds; those on the young shoots, opposite, and smooth. The flowers are small, sustained on pedicels, and stand in thick clusters on the extremities of the last year's branches. They are generally of different sexes on distinct plants; the fertile flowers, with the rudiments of stamens, narrow petals, and a deeply four-cleft style; the barren ones with an abortive germen, and broader petals. The anthers are small, roundish, on short awl-shaped filaments, and inserted in the mouth of the four-cleft calyx, opposite to each petal. The berries, which succeed the germen in the female flowers, are black when ripe, globular, of the size of a pea, and contain a green bulb, with *four* cells, and as many seeds, that are smooth, elliptical, convex on one side, and flattened on the other. By this last character they are easily known by druggists, from the fruit of the *Rhamnus Frangula*, which has only *two* seeds, and is supposed to be less active.

There are two British species of Buckthorn: Common Buckthorn, already described, and Alder Buckthorn, or Berry-bearing Alder, (*R. Frangula*.) The latter is a shrub, which like the preceding, grows to a considerable height, with smooth entire leaves, and flowers in May. It is destitute of thorns; and the berries, which ripen in July, are dark purple, each containing two large yellowish seeds. This plant formerly obtained a place in the foreign dispensatories, under the name of *Frangula*. The inner bark, the only part used in medicine, when dried is a drastic purgative; emetic, when green. The berries gathered before they are ripe dye wool green, and yellow; when ripe, blue-grey, blue, and green. The bark dyes yellow, and, with preparations of iron, black.

The species usually cultivated, or introduced as objects of curiosity are,—the Turkey-berry buckthorn, (*R. infectorius*;) the shining-leaved buckthorn, or common jujube, (*R. zizyphus*;) the common alaternus, (*R. Alaternus*;) the pubescent rhamnus, or Bahama-red-wood, (*R. colubrinus*;) the common Christ's thorn, (*R. Paliurus*;) the pointed-leaved buckthorn, (*R. anoplia*.)

The first is a native of the south of Europe. It is frequent in rough stony places in Greece, and is regarded by Dr. Sibthorp as the *Λυκίον*, *Lycium*, of Dioscorides. The unripe berries are much used for dyeing, and are imported into England under the name of French berries. They are chiefly used for topical dyeing in calico printing; but the colour which they communicate is very fugitive; they are also used to give the colour to Turkey leather, or yellow morocco. This shrub is very nearly related to the *R. catharticus*, but grows procumbent, not erect, and the leaves are smaller and narrower.

The fruit of the shining-leaved buckthorn, or common jujube, is sold in the market at Canton during the autumn. It is about the size of an olive, of a yellowish-red colour, sweetish and clammy. In Italy and Spain it is served up at table, in desserts during the winter season, as a dry sweetmeat. It was formerly kept in the shops, under the name of *jujubes*, and recommended in coughs and other pulmonary complaints, but has now fallen into disuse in England, although in France it is still esteemed.

The natives of Siberia use the wood of an unarmed species, the *Rhamnus Erythoxylon*, or Siberian Red-wood, to make their images, on account of its hardness and colour. According to Osbeck, the poor in China, where the shrub is a native, use the leaves of the *R.* (now *Segetia*) *Theezans*, as a substitute for the genuine tea, and it is even called by them *Tia*.

PALIURUS ACULEATUS, the Christ's-thorn, is a very common plant in Palestine, and is found in most sterile places bordering on the Mediterranean Sea. Tradition affirms that the Saviour's Crown of thorns was made of the pliant branches of this spiny plant, and none could be more fitting for the brutal purpose to which it is said to have been applied. Hasselquist, however, is of opinion that a species of *Zizyphus*, hence called *Z. spina-Christi*, is the true Christ's-thorn.

The fruit of *P. aculeatus* resembles a head with a broad brimmed hat on; and the French, from its very singular appearance, call the tree *Porte-chapeau*. The seeds are sold in the herb and physic shops of Constantinople under the name of *Xalle*. The *hakims* or native doctors prescribe them in many complaints, and they are used also as a dye. The plant itself is one of the commonest thorns of the hedges in many parts of Asia, and its flexible spiny branches form fences of a most impassable kind.

Rhamnus, the buck-thorn, is said to have been so named from its ramose port. *Rhamnus*, *ραμνος*, *ramus*, *rame*, and the obsolete French *reim*, being fancied to be the descendants of an old word, *ram*, a branch; and *Rheims*, which is but a slight variation of *reim*, bears two branches intertwined as the arms of the town.

QUALITIES.—The odour of the buckthorn-berries is faint and unpleasant; and to the taste they are bitter, acrid, and nauseous. They are said to contain acetic acid, mucilage, sugar, and an azotized substance.

MEDICAL PROPERTIES AND USES.—The juice of the berries is a violent griping, drastic purgative, capable of exerting very injurious effects; and although occasionally employed as a domestic remedy, it is now chiefly used in veterinary practice. A syrup is still prepared from buckthorn-berries, as directed by the London and Edinburgh colleges. The London form is preferred on account of the aromatics which enter into its composition, preventing its griping effects. It is, however, a violent remedy, and produces most unquarable dryness of the mouth and throat, and intolerable thirst. The *dose* is from six drachms to an ounce.

From the inspissated juice of the ripe berries, with a very small addition of alum, is obtained that green colour so well known by the name of *verte-de-vessie* or *sap green*. Sometimes it is prepared by adding eight pounds of lime-water to twelve pounds of the expressed juice, and six ounces of gum arabic; which mixture is afterwards evaporated to the consistence of an extract, and dried for use.

Certain Festival Days, says, Dr. Foster, were believed, formerly, to prognosticate the weather of the coming year; and, although the alteration of the style, by removing each festival about twelve days forwarder in the calendar, created great confusion in the application of these prognostications, yet many an ignorant husbandman and astrologer still consults the "critical days." It is not, however, the particular day, but the particular time of year, which justifies an expectation of particular weather.

There are weather prognostics derived from St. Vincent's Day, January 22nd; St. Paul's, January 25th; Candlemas, February 2nd; St. John, June 24th; St. Swithin, July 15th; and St. Simon and Jude, October 28th. But, to render the prognostics concerning these or any other days valid and consistent, a constant relation should subsist between the phenomena of each in every year. This is not the case, and therefore, if there were no other reason, the fallacy of relying on the weather of any particular day is obvious.

It is true that certain critical changes of the weather usually take place, and certain well known plants begin to flower in abundance, about the time of certain festival days; yet these marks of the year are connected only, because the festivals were appointed to be celebrated at the weather-changing and plant-blowing seasons. The fragrant coltsfoot in mild seasons has the greatest quantity of its flowers at Christmas. The dead nettle is generally in flower on St. Vincent's Day, January 22nd.

The winter hellebore usually flowers, in mild weather, about the conversion of St. Paul, January 25th.

The snowdrop is almost proverbially constant to Candlemas Day, or the Purification, February 2nd. The mildness or severity of the weather seems to make but little difference in the time of its appearance; it comes up blossoming through the snow, and appears to evolve its white and pendant flowers, as if by the most determined periodical laws.

The yellow spring crocus generally flowers about St. Valentine's Day, February 14th; the white and blue species come rather later.

The favorite daisy usually graces the meadows with its small yellow and white blossoms about February 22nd, the festival day of St. Margaret of Cortona whence it is still called in France *La Belle Marguerite*, and in England *Herb Margaret*.

The early daffodil, blows about St. David's Day, March 1st; and soon covers the fields with its pendant yellow cups.

The pilewort usually bespangles the banks and shaded sides of fields with its golden stars about St. Perpetua, March 7th.

About March 18th, the Day of St. Edward, the magnificent crown imperial blows.

The cardamine first flowers about March 25th, the festival of the Annunciation, commonly called Lady Day. Like the snowdrop it is regarded as the emblem of virgin purity, from its whiteness.

The Marygold is so called from a fancied resemblance of the florets of its disk to the rays of glory diffused by artists from the Virgin's head.

The violets, heartseases, and primroses, continual companions of spring, observe less regular periods, and blow much longer.

About April 23rd, St. George's Day, the blue bell or field hyacinth, covers the fields and upland pastures with its brilliant blue—an emblem of the patron saint of England—which poets feigned to braid the bluehaired Oceanides of our seagirt isle.

The whitethorn used, in the old style, to flower about St. James, May 1st, and thence was called May; but now the blackthorn is hardly out by the first of that month.

At the Invention of the Cross May 3rd, the poetic Narcissus, as well as the primrose peerless, are usually abundant in the southern counties of England; and about this season Flora begins to be so lavish of her beauties, that the holiday wardrobe of her more periodical handmaids is lost amidst the dazzle of a thousand "quaint and enamelled eyes," which sparkle on her gorgeous frontlet.

Many similar coincidences might be instituted between remarkable days in the calendar and the host of summer and autumnal flowers down to the michaelmas daisy, and various ancient documents might be adduced to show a former prevailing belief in the influence of almost every festival on the periodical blowing of plants. For, in the middle or dark ages, the mind fancied numberless signs and emblems, which increase the list of curious antiquities and popular superstitions in "the short and simple annals of the poor." The persuasion which occupied and deluded men's minds in the past days are still familiarly interwoven with the tales and legends of infancy—that fairy time of life, when we wonder at all we see, and our curiosity is most gratified by that which is most marvellous.



Genista bracteolata.

GENISTA BRACTEOLATA.—RACEMOSE GENISTA.

CLASS XVI. MONADELPHIA.—ORDER II. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.

1, Calyx. 2, Standard. 3, Wing. 4, A. Petal of the Keel. 5, Stamens and Pistil. 6, The whorl of stamens opened.
7, A. flower with a double standard.

CHARACTER OF THE GENUS, GENISTA. Calyx bilabiate, with the upper lip bipartite, and the inferior tridentate, or else five-lobed, with the three inferior lobes united nearly to the apex. Vexillum oblong-oval. Keel oblong, straight. Stamens monadelphous. Legume flatly-compressed, or more rarely somewhat turgid, many-seeded, rarely few-seeded, without glands.

DESCRIPTION OF THE SPECIES, GENISTA BRACTEOLATA. A large shrub, with numerous pendant branches, flowering profusely from almost every lateral branch. Branches angular. The whole plant covered with short appressed silky tomentum. Leaves trifoliate, on moderately long petioles, the leaflets obovate-lanceolate, slightly mucronate, darker above, more silky below, stipules very small, subulate. Racemes moderately crowded, rather short; the pedicels short, with a linear lanceolate bract at their base, or about half way up, and two other very minute ones close to, and alternating with, the lips of the calyx. Calyx with the upper lip bipartite, forming two equal teeth, the lower lip about the size of one of the divisions of the upper, somewhat depressed, with three very minute teeth. Flower bright yellow. Standard oblongo-subcordate, emarginate, with a very short claw. Wings obliquely linear-obovate, with narrow linear twisted strap-shaped claws. Keel ovate-oblong, straight, enveloping (at first) only the base of the stamiferous tube, but ultimately drooping, and almost entirely excluding it, its petals somewhat smaller and paler, but very like the wings. Stamens monadelphous, alternately long and short. Ovary somewhat compressed, hairy, containing about nine ovules.

Dr. Lindley having kindly identified our plant with *Genista bracteolata* we can have no hesitation in assigning to it the name of that species. In the brief descriptions of Decandolle's *Prodromus* it is impossible to find characters sufficiently precise for separating species so closely allied as this and *Genista candicans*, and perhaps further enquiry may, after all, prove them to be identical. At least the figure in the *Botanical Register*, with its elongated racemes of scattered flowers, scarcely accords with our much more condensed and shorter ones, or even with one of Link's specific characters, "*racemis brevibus*;" neither can the leaflets of our plant be considered "*obtusissima*." Such discrepancies in descriptions make it difficult for us to feel satisfied, when comparison with authentic specimens would probably leave us in no doubt. The species seems inclined to produce double flowers, at least we found some which had a double standard, and where the upper lip of the calyx was subdivided into three segments.*

The plant was raised from seed, by R. Bevan, Esq., near Bury St. Edmunds, under the name of *Cytisus Chrysobotrys*, but he is not aware from whence the seed was obtained. The specimen figured in the *Botanical Register* was raised from seeds gathered by Mr. Webb at Teneriffe. It is probably of easy culture; and, flowering so early as the first week of March, is a great acquisition to the greenhouse.

Gardens, are amongst the most delightful things which human art has prepared for our recreation and refreshment. To say nothing of the common-places, that a garden was first constructed by God himself,—that in the shades of a glorious garden our first parents were placed by him,—that our Saviour delighted to walk in a garden,—that in a garden he suffered his agony, and that in a garden he was buried; there are a thousand reasons why gardens should be highly valued, especially by those who are fond of the country. Lovers of nature cannot always stroll abroad to those beauties and delights which lie scattered far and wide; the physical impediments of time and space—the severities of winter, the dews, the hasty storms, and the strong heats of summer, lie between them and their enjoyment, especially if they be of the delicate sex. But into a garden—a spot into which, by the magical power of science, taste and adventurous enterprise, the sweetest and most beautiful vegetable productions, not only of our own country, but of the whole globe, are collected, they may step at all hours, and at all seasons; yes, even through the hours of night, when

* The Botanist.

many glories of Nature are to be witnessed; her sweetest odours are poured out; her most impressive and balmy quiet is sent upon earth. There, fearless of any "pestilence that walks in darkness," the gentlest and most timid creature may tread the smooth path of the garden, and behold all the calm pageantry of the glittering host of stars, of moonlight and of clouds. The bowers of a good modern garden invite us from the fierce heat of noon to the most delicious of oratories, in dry summer eves, to the most charming place of social enjoyment. A garden, with all its accompaniments of bowers, secluded seats, shrubberies, and hidden walks, is a concentration of a thousand pleasant objects, and the field of a multitude of animating pursuits. The rarest beauties of the vegetable world are not only there congregated, heightened in the richness and splendour of their charms, but there many of them are actually created.

The feeble invalid and feebler age, they who cannot lay hold on Nature in her amplitude, though they may anxiously and intensely thirst to renew on heath and mountain, the enchantments of past days, can there grasp a multitude of her delights at once. The sedentary man,

Secluded but not buried, and with song
Cheering his days,

there finds the most congenial relaxation, the most restorative exercise ever at hand. The lover of all bright hues and graceful forms, of all delicate and spicy aromas of curious processes and wonderful phenomena, of all that is soothing to the mind, and pleasant to the vision and the taste, there walks in a fairy-land of his own creation. There the sun shines tempered by the coolness of whispering branches; the breeze blows softly, charged with fragrance; the dews fall to refresh and awaken sleeping odours, and birds bring from their wilder haunts their melodies. To the fair creature, who, like Eve, is a lover of flowers, what a perpetual source of affectionate interest, of hopes and fears, and speculations of delightful labours, cares and watchings, is found in a garden! Poets have always delighted to describe their favourite heroines amid the amenities of gardens, as places peculiarly accordant with the grace and gentle nature of woman. How beautiful is that passing view which Chaucer gives us of Emilia, in Palemon and Arcite!

Emily ere day
Arose and dress'd herself in rich array;
Fresh as the month, and as the morning fair,
Adown her shoulders fell her length of hair;
A riband did the braided tresses bind,
The rest was loose and wanton'd in the wind.
Aurora had but newly chased the night,
And purpled o'er the sky with blushing light,
When to the garden walk she took her way,
To sport and trip along in cool of day,

And offer maiden vows in honour of the May.
At every turn she made a little stand,
And thrust among the thorns her lily hand
To draw the rose; and every rose she drew,
She shook its stalk, and brush'd away the dew;
Then party-colour flowers of white and red
She wove, to make a garland for her head:
This done, she sung and caroll'd out so clear,
Then men and angels might rejoice to hear.

But how much more beautiful is Milton's picture of our first mother, pursuing her pleasant labours in the first garden, issuing from her bower at Adam's call,—

Awake! the morning shines, and the fresh field
Calls us; we lose the prime to mark how spring
Our tender plants, how blows the citron grove,

What drops the myrrh, and what the balmy reed;
How Nature paints her colours, how the bee
Sits on the bloom, extracting liquid sweet:

or to her sylvan home, as we see her

Just then return'd at shut of evening flowers:

or, in the midst of that anguish, when, hearing pronounced her banishment from Eden, she exclaimed "with audible lament,"

Oh, unexpected stroke worse than of death!
Must I thus leave thee, Paradise? thus leave
Thee, native soil! these happy walks and shades,
Fit haunt of Gods? where I had hoped to spend,
Quiet, though sad, the respite of that day
That must be mortal to us both. O flowers,

That never will in other climates grow,
My early visitation and my last
At even, which I bred up with tender hand
From the first opening bud, and gave ye names!
Who now shall rear ye to the sun, or rank
Your tribes, and water from the ambrosial fount?

But Milton, as in other respects, so he is unrivalled in his painting of garden scenery. One cannot but remark, how in that, as in every thing else, he outwent his own times. In those days of tortured trees, and stiff formal fences and garden-plots, what a magnificent but free, and naturally beautiful wilderness he has sketched in the 4th Book of Paradise Lost! From him, and Lord Bacon, whose taste, however, was far inferior, we may date the regeneration of English pleasure-gardens; and now such delightful spots have we scattered through the country, that the East from which we borrowed them can scarcely rival them. The imaginative mind cannot contemplate the assemblage, which from all far-off lands, is there brought together without being carried by them into their own fair regions; nor the reflective one, without being struck with the innumerable benefits we have derived from art and commerce.

Sinapis.



alba.

nigra.

SINAPIS ALBA.—WHITE MUSTARD.

CLASS XV. TETRADYNAMIA.—ORDER II. SILIQUOSA.

NATURAL ORDER, CRUCIFERÆ.—THE CRUCIFEROUS TRIBE.

FIG. (a) represents a lower leaf; (b) the stamen, pistil, and glands; (d) a pod or silique; (e) a seed to show the incumbent pleurorhizous radicle.

THERE are two species of Mustard admitted into our national pharmacopœias: the White Mustard, *sinapis alba*, and the Black, or Common, *sinapis nigra*. Both are indigenous annuals, growing naturally in fields, and both have been cultivated here, and in most parts of Europe, for an unknown period. The White Mustard flowers in June, and ripens its seed in July.

White Mustard has a small tapering root. The stem is erect, branched, rough, with slender reflexed hairs, and rises to the height of about two feet. The leaves are lyrate, deeply cut, roughish, and of a bright green colour. The flowers are yellow, and form terminal racemes, each having four petals disposed in the form of a cross. The leaves of the calyx are linear, green, and spread horizontally. The filaments, germen, and pistil, resemble those of the following species. The flowers are succeeded by short, two edged, very tumid pods, spreading on nearly horizontal stalks, rough, with numerous minute reflexed bristles, interspersed with larger upright ones; the beak is longer than the pod, is bristly, sword-shaped, curved upwards, and terminated by the compressed style and cloven stigma. The seeds are rather large, few, and of a pale yellowish brown colour.

SINAPIS NIGRA.—COMMON BLACK MUSTARD.

FIG. (c) represents a pod or silique of common mustard burst open, showing the situation of the seeds.

COMMON MUSTARD sends up a smooth, branched stem, which is taller and more spreading than the preceding, to the height of three or four feet. The lower leaves are large, lyrate, rough, variously lobed and toothed; the upper ones petioled, smooth, lanceolate, entire, and spreading or hanging downwards. The flowers are pale yellow, and smaller than the preceding. The calyx is yellowish and spreading; petals obovate; filaments simple, erect, supporting oblong anthers; germen cylindrical, tapering into a short style, which is crowned with a knobbed stigma. The pods are small, smooth, obtusely quadrangular, pressed close to the stem, and terminated by the permanent style and capitate stigma. The seeds are numerous, round, shining, and of a dark brown colour. The French call the plant "*sénévé*," and confine the term "*moutarde*" to prepared table mustard.

The generic name *Sinapis*, which occurs, with slight variations in the orthography, in the works of Plautus, Pliny, and Columella, is retained in our modern nomenclature from these celebrated authors. Theophrastus and Dioscorides call it *Σινηπι*. De Theis conjectures that this word comes from *Nap*, a Celtic name for all plants allied to the radish. The colour of the respective seeds suggested the trivial appellations, *alba* and *nigra*. Mustard, *moutarde*, *mosterd*, &c., are said to be all contracted corruptions of *mustum ardens*, *hot must*: the sweet *must* of new wine being one of the old ingredients in mustard prepared for dietetic uses; a practice which is still adhered to by the French. In moistening mustard powder for the table both the flavour and appearance are improved by mixing it with rich milk; but this mixture has the disadvantage of not keeping good for more than a couple of days.

DISTINCTIVE CHARACTERS.—The difference in point of form betwixt the leaves and pods of the present species, and those of the preceding sort, distinguish the two plants at once. The Black Mustard is a taller plant than the white; the upper leaves of the black are narrow and pendant, the flowers small, the pods quite smooth, and lying close to the stem; while in the white, the flowers are large, the pods rough or hairy, and standing out from the stalk.

As substitutes for either the black or common Mustard, most of the Cruciferæ may be used, especially the *Sinapis arvensis*, *Myagrum sativum*, *Sisymbrium officinale*, the *Erysimum*, *Lepidium*, *Turrites*, *Brassica*, *Sinapis orientalis*, *Chinensis*, and *brasicata*; the latter is commonly cultivated in China. The *Raphanus Raphanistrum*, or wild radish, is said to be so complete a substitute, that the seeds are often separated in the process of cleaning grain by farmers, and sold to the mustard or oil millers, who dispose of it as Durham Mustard.

Professor Brande states that the bright yellow powder sold under the name of *flour of mustard*, and used at the table, is a compound of black and pale mustard-seed, Cayenne pepper, wheat flower and

turmeric ; a portion of sulphur may be detected in the different kinds of mustard seeds, and when mustard as prepared for a condiment, putrifies, it exhales the odour of sulphuretted hydrogen.

QUALITIES AND CHEMICAL PROPERTIES.—The seeds of both the black and white mustard agree in their sensible qualities, and are used indiscriminately at our tables. They are pungent and acrimonious when bruised, and by the addition of vinegar become much more so. A mild oil, having a sweetish taste and a slight nauseous odour, and which soon turns rancid, is yielded by expression, the acrid matter being chiefly retained by the fecula. The seeds afford one-fifth of their weight of this oil, which in large doses operate as a purgative. The mark which remains after expressing is more pungent than the seeds previously were, and on this account they are submitted to pressure previous to being formed into flour of mustard to be used as a condiment. Unbruised, they simply yield mucus to boiling water, which resides in the skin. Water takes up all the active properties of the powder of mustard, and alcohol but little. The seeds give off ammonia by trituration with lime water, which is probably owing to some decomposition taking place, which, yielding hydrogen, it combines with the nitrogen present in the seeds, and the volatile alkali is produced.

Dr. Cullen long ago observed, that if mustard-seeds be taken fresh from the plants, and ground, the powder has little pungency, but is very bitter ; by steeping in vinegar, however, the essential oil is cooled, and the powder becomes extremely pungent. M. Thibierge has since analyzed mustard, and obtained from it the following products:—1. A soft, fixed oil, of a dark greenish colour, soluble in alcohol and ether, which is procured by pressure. 2. Another oil, obtained by distillation, of a golden yellow colour, volatile, heavier than water, having a hot acrid taste, soluble in alcohol and depositing sulphur. It is this oil which irritates the eyes and excites tears, in mustard prepared for the table, and which vesicates when mustard is applied to the skin. 3. An albuminous vegetable principle ; 4. a large quantity of mucilage ; 5. sulphur ; 6. nitrogen ; 7. the seeds incinerated appear to contain phosphate and sulphate of lime, and a little silex. [*Journ. de Pharm.* v, 439.] Henry and Garot have ascertained that mustard contains a peculiar acid, which they have named the sulpho-sinapic, in which sulphur is supposed to exist in a peculiar state of combination. (*Journ. de Chirur. Med.*)

MEDICAL PROPERTIES AND USES.—A large tea-spoonful of the powder of mustard-seed mixed in water, produces vomiting, and on account of its stimulating properties, is perhaps preferable to other emetics, when the stomach has been rendered torpid, by apoplectic, or paralytic affections. It is even asserted that it has acted in such cases, when other emetics have failed : and diffused in a large quantity of warm water, it is always a useful auxiliary to them. The unbruised seeds, swallowed in doses of half an ounce to an ounce, have relieved chronic rheumatism. Bergius, who is extremely fond of combining other agents with cinchona bark, says that its activity is much increased, by being mixed with flour of mustard, and he even asserts that he has cured intermittants solely by its use. The great Boerhaave, also, gives the case of a girl at Amsterdam, who after taking a variety of medicines for chorea, was at last restored to perfect health by white mustard seeds. They are proper, he observes, in hypochondriac affections, obstructions of the liver, and spleen, in dropsy, scurvy, cachexy, and chlorosis. Combined with horse-radish, they are stimulant and diuretic, and as such are useful in broken down constitutions. In cases of dyspepsia, attended by habitual costiveness in leucophlegmatic constitutions, two or three tea-spoonfuls of the whole seed, repeated two or three times a day, will frequently prove beneficial, but the injudicious manner in which their virtues have been lauded, has led to the abuse of a useful remedy, which in improper hands has produced ulceration of the mucous membrane of the stomach and intestines, and other serious consequences. Instances of this kind are mentioned in Wheeler's Catalogue of the Official Plants growing in Chelsea Gardens. He says, he has known the seeds retained for more than a week in the *primæ viæ*, and enteritis, and even death to ensue from these irritating seeds entering the appendix cæci vermiformis. Van Swieten also relates the case of a strong healthy man, attacked with a quartan ague, who swallowed a large quantity of bruised mustard seeds steeped in Hollands. Inflammatory fever followed, and carried him off in three days. In typhus fever, when there is extreme depression of the vital powers, or determination of blood to the head ; and in comatose affections, cataplasms, or sinapisms, as they are more frequently termed, composed of equal parts of flour of mustard and of crumbs of bread, made into a paste with hot vinegar, are applied to the feet, and act as powerful rubefacients. If continued too long, very intense pain is produced by them, and inflammation which it is difficult to subdue.

OFF. PREP.—Cataplasma Sinapis. *L. D.**

The seeds of mustard are not only remarkable for the rapidity of their development so that it has been said a salad might be grown while a joint of meat was being roasted, but also for their tenacity of life, for where a crop of mustard has been once seeded, self-sown stragglers will come up for a century afterwards.

* WHITHEAD'S "Essence of Mustard" consists of oil of turpentine, camphor, and spirits of rosemary ; to which is added a little flour of mustard. His "Essence of Mustard Pills" are Balsam of Tolu, with resin!



Gonolobus hispidus.

GONOLOBUS HISPIDUS.—HISPID GONOLOBUS.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, ASCLEPIDACEÆ.

CHARACTER OF THE GENUS GONOLOBUS. Calyx five-parted. Corolla somewhat wheel-shaped, five-parted. Corona stameneous, scutelliform-lobed. Anthers terminating with a membranaceous appendage, dehiscing transversely. Pollinia transverse, fixed to the exterior extremity. Stigma flattish. Follicles patent, ventricose, somewhat ribbed. Seeds many, comose to the umbilicus.

DESCRIPTION OF THE SPECIES, GONOLOBUS HISPIDUS. Stem suffruticose, round, somewhat twining, clothed with long, soft, yellowish hispid hairs. Leaves opposite, petiolate, membranaceous, of a pale green colour, ovate, cordate, or orbicular, the upper ones acute, undulate, and ciliate, each side smooth, with the exception of the veins on the under side, which are prominent. Petioles from a quarter to half an inch long, covered with hairs, similar to those on the stem. Peduncles axillary, hairy, scarcely as long as the petioles. Flowers from four to ten, umbellate. Pedicels hairy, about half as long as the peduncles. Bracts subulate, about the length of the pedicels. Calyx smooth, about one third the length of the corolla. Corolla from half to three quarters of an inch in diameter, rotate, concave, of a thick coriaceous leathery texture, and of a dark shining brownish purple colour, divided into five equal ovate acute parts, in the exterior of which, at the base, are small raised points. Nectaries of five erect dark, purple, fleshy, bifid scales from the base of the corolla; within these appendages are arranged the five stamens, which are united into a very thick stipes. Anthers five, extrose, two celled, between which are found two small diverging lobes. Pollen masses two, compact, waxy, yellow. Ovarium inferior, ovules numerous.

The species which compose this genus are not of a showy character, indeed many of them are no better than rambling weeds, and not worth cultivating; such are for example, *Gonolobus maritimus*, and *Gonolobus diadematus*. Perhaps for beauty there has not been introduced a more attractive species than the one now figured, as each umbel contains from eight to ten blossoms, having a diameter of from two to three inches, which are arranged in the axils of the leaves, alternate on each side of the stem, at a distance of about three inches; and so freely are its flowers produced that they commence at about eighteen inches from the ground, and continue to the height of several feet. The flowers, however, are not of an attractive brilliance, being of a dark brown purple colour; but it has a powerful and concentrated fragrance, of so singular a description that it has been compared, by Sir W. J. Hooker, to the flavour of roasted peas. The number of described species at present introduced amounts to about thirty, all natives of South, and the warmer parts of North, America: the locality of our present species is Entre Rios, South Brazil.

If, however, the species of this genus are not showy, they are, together with the whole of the natural order Asclepiadaceæ, very singular in structure, so much so that they differ from all other dicotyledones or exogens, and are more related in their sexual structure to the Orchidaceæ, as may be witnessed in the compact waxy texture of the pollen masses, and which are found so uniformly in the Asclepiadaceæ proper. On the relation of Asclepiadaceæ to Orchidaceæ some interesting observations have been published, by Dr. then Mr. Brown, to which the reader is referred.

INTRODUCTION; WHERE GROWN; CULTURE. Our plant was introduced into this country in the year 1837. It was sent, in that year, by Mr. Tweedie, to the Glasnevin Garden, in which establishment it flowered in 1839.

It is treated as a stove plant, but, probably, it will stand our winters in a sheltered situation, against a warm wall, on the southern coast; where, if trained, it will flower in much greater perfection than remaining in a pot; and its lurid flowers will form a striking contrast to many other climbers. It may be propagated by cuttings, placed under a hand-glass in a stove; and when potted out should be planted in loam, sand, and peat.*

A writer under the signature Crito in the "Truth Teller" dilates most pleasantly in his fourth letter concerning flowers and their names. He says "the pilgrimages and the travelling of the mendicant friars, which began to be common towards the close of the twelfth century, spread this knowledge of plants and of medical nostrums far and wide. Though many of these vegetable specifics have been of late years erased from our Pharmacopœias, yet their utility has been asserted by some very able writers on physic, and the author of these observations has himself often witnessed their efficacy in cases where regular practice had been unavailing. Mr. Abernethy has alluded to the surprising efficacy of these popular vegetable diet drinks, in his book on the 'Digestive Organs.' And it is a fact, curiously corroborating their utility, that similar medicines are used by the North American Indians, whose sagacity has found out, and known from time immemorial, the use of such various herbs as medicines, which the kind, hospitable woods provide, and by

* We are indebted to that charming work, the "Botanist," for the figure and description.

means of which Mr. Whitlaw is now making many excellent cures of diseases." He then proceeds to mention certain plants noted by the monks, as flowering about the time of certain religious festivals: "The Snowdrop, *Galanthus nivalis*, whose pure white and pendant flowers are the first harbingers of spring, is noted down in some calendars as being an emblem of the purification of the spotless virgin, as it blows about Candlemas, and was not known by the name of Snowdrop till lately, being formerly called Fair Maid of February, in honour of our lady. Sir James Edward Smith, and other modern botanists, make this plant a native of England, but I can trace most of the wild specimens to some neighbouring garden, or old dilapidated monastery; and I am persuaded it was introduced into England by the monks subsequent to the conquest, and probably since the time of Chaucer, who does not notice it, though he mentions the daisy, and various less striking flowers. The Ladysmock, *Cardamine pratensis*, is a word corrupted of 'our lady's smock,' a name by which this plant (as well as that of *Chemise de notre Dame*) is still known in parts of Europe: it first flowers about Lady Tide, or the festival of the Annunciation, and hence its name. Cross Flower, *Polygala Vulgaris*, which begins to flower about the invention of the Cross, May 3, was also called *Rogation flower*, and was carried by maidens in the processions in Rogation week, in earlier times. The monks discovered its quality of producing milk in nursing women, and hence it was called *milkwort*. Indeed so extensive was the knowledge of botany, and of the medical power of herbs among the monks of old, that a few examples only can be adduced in a general essay, and indeed it appears that many rare species of exotics were known by them, and were inhabitants of their monastery gardens, which Beckmann, in his '*Geshiete der Erfindungen*,' and Dryander in the '*Hortus Kewensis*,' have ascribed to more modern introducers. What is very remarkable is, that above three hundred species of medical plants were known to the monks and friars, and used by the religious orders in general for medicines, which are now to be found in some of our numerous books of pharmacy and medical botany, by new and less appropriate names; just as if the Protestants of subsequent times had changed the old names with a view to obliterate any traces of catholic science. Linnæus, however, occasionally restored the ancient names. The following are some familiar examples which occur to me, of all medicinal plants, whose names have been changed in latter times. The *virgin's bower*, of the monastic physicians, was changed into *flammula Jovis*, by the new pharmaciens; the *hedge hyssop*, into *gratiola*; the *St. John's wort* (so called from blowing about St. John the Baptist's day) was changed into *hypericum*; *fleur de St. Louis*, into *iris*; *palma Christi*, into *ricinus*; *our master wort*, into *imperatoria*; *sweet bay*, into *laurus*; *our lady's smock*, into *cardamine*; *Solomon's seal*, into *convallaria*; *our lady's hair*, into *trichomanes*; *balm*, into *melissa*; *marjorum*, into *origanum*; *crowfoot*, into *ranunculus*; *herb Trinity*, into *viola tricolor*; *avens* into *caryophyllata*; *coltsfoot*, into *tussilago*; *knee holy*, into *ruscus*; *wormwood*, into *absinthium*; *rosemary*, into *rosmarinus*; *marygold*, into *calendula*, and so on. Thus the ancient names were not only changed, but in this change all the references to religious subjects, which would have led people to a knowledge of their culture among the monastic orders, were carefully left out. The Thorn Apple, *datura stramonium*, is not a native of England; it was introduced by the friars in early times of pilgrimage; and hence we see it on old waste lands near abbeys, and on dunghills, &c. Modern botanists, however, have ascribed its introduction to gipsies, although it has never been seen among that wandering people, nor used by them as a drug. I could adduce many other instances of the same sort. But vain indeed would be the endeavour to over-shadow the fame of the religious orders in medical botany and the knowledge of plants; go into any garden and the common name of *marygold*, *our lady's seal*, *our lady's bedstraw*, *holy oak*, (corrupted into *holyhock*), the *virgin's thistle*, *St. Barnaby's thistle*, *herb Trinity*, *herb St. Christopher*, *herb St. Robert*, *herb St. Timothy*, *Jacob's ladder*, *star of Bethlehem*, *star of Jerusalem*, now made *goatsbeard*: *passion flower*, now *passiflora*; *Lent lily*, now *daffodil*; *Canterbury bells*, (so called in honour of St. Augustine,) is now made into *Campanula*; *cursed thistle*, now *carduus*; besides *archangel apple of Jerusalem*, *St. Paul's betony*, *Basil*, *St. Berôe*, *herb St. Barbara*, *bishopsweed*, *herba Christi*, *herba Benedict*, *herb St. Margaret*, (erroneously converted into *la belle Marguerite*), *god's flower* *flos Jovis*, *Job's tears*, *our lady's laces*, *our lady's mantle*, *our lady's slipper*, *monk's hood*, *friar's cowl*, *St. Peter's herb*, and a hundred more such.—Go into any garden, I say, and these names will remind every one at once of the knowledge of plants possessed by the monks. Most of them have been named after the festivals and saints' days on which their natural time of blowing happened to occur; and others were so called, from the tendency of the minds of the religious orders on those days to convert every thing into a memento of sacred history, and the holy religion which they embraced."

It will be perceived that Crito is a Catholic. His floral enumeration is amusing and instructive; but deceptive views, false reasonings, and perverted facts, cannot be used, by either Protestant or Catholic, with impunity to himself, or avail to the cause he espouses.



Aquilegia glandulosa.

AQUILEGIA GLANDULOSA.—GLANDULAR COLUMBINE.

CLASS XIII. POLYANDRIA.—ORDER II. PENTAGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

CHARACTER OF THE GENUS, AQUILEGIA. Calyx of five deciduous coloured petaloid sepals. Petals five, two-lipped and gaping at top, the outer lip large and flat, the inner very small, produced downwards into as many spurs projecting between the sepals. Stamens many, arranged in five or ten bundles, the inner ones without anthers and with broad membranous filaments. Ovaries five. Capsules as many, erect, many-seeded, pointed by the styles.

DESCRIPTION OF THE SPECIES, AQUILEGIA GLANDULOSA. Stem usually about a foot to eighteen inches high, not much branched, nearly smooth in the lower part, more or less pubescent and glandular in the upper part. Leaves chiefly radical, or proceeding from near the base of the stem, with long slender footstalks divided above the middle into three, each bearing three nearly sessile segments, which are rounded somewhat cuneate, and divided to about the middle into three lobes, which are themselves crenated or obtusely lobed; these leaves are smooth and somewhat glaucous underneath; the few upper leaves much smaller, and often consist of a few linear segments only. Flowers solitary on the peduncles, large, nodding. Sepals oval, oblong, rather pointed, of a deep blue, smooth. Petals not half so long as the sepals, the lamina obovate, blunt, of a pale yellowish colour, spurs blueish, much shorter than the lamina, the extremity blunt, and more or less curved, but usually much less hooked than in *Aquilegia vulgaris*. Stamens shorter than the petals. Capsules pubescent, six to ten in number, very seldom reduced to five.

POPULAR AND GEOGRAPHICAL NOTICE. The Columbines are all inhabitants of the temperate or even the cold regions of the Northern hemisphere in the new world as well as in the old. The greater number of species are found in central Asia. They usually prefer light woods in mountainous countries, although some of the more alpine species are also found in the crevices of elevated rocks. The present species, very common in the alpine and subalpine regions of the Altai Chain, there replaces our European *Aquilegia Alpina*, which it closely resembles, and of which it may possibly be a mere variety. It has, however, been distinguished by the shortness of the spurs of the petals, and by the number of ovaries, which are seldom if ever more than five, in the European species, and very rarely so few as five in the Siberian one. It is also a taller growing and handsomer plant, with larger flowers, and the petals are more frequently, though not constantly, white. None of these characters appear indeed to be absolute in all cases, but are nearly as good as those which serve to distinguish many other species of this most natural genus.*

COLUMBINE, COCK'S-FOOT, OR CULVERWORT.—The botanical name for this plant, *Aquilegia* or *Aquilina*, is derived from aquila, an eagle, from a notion that the nectaries resemble an eagle's claws. Our English name, columbine, is derived from the resemblance which, in a wild state, these parts bear, both in form and colour, to the head and neck of a dove, for which the Latin name is *Columba*.—*French*, aiglantine, ancolie, la columbine, la galantine; gands de notre dame [our lady's gloves,]—*Italian*, achellea, colombina, perfetto amore [true love,] celidona maggiore [gréat celandine,] at Venice, galeti.

The Common Columbine is generally, in its wild state, of a blue colour, whence it is named the Blue Starry, but in the neighbourhood of Berne, and in Norfolk, it has been found both with red and white flowers. It is common in woods, hedges, and bushes, in most parts of Europe. They are greatly changed by culture: become double in various ways; and are of almost all colours; blue, white, red, purple: flesh, ash, and chestnut coloured blue and white, and red and white. It is a perennial plant, and, with us, flowers in June.

Every part of this plant has been considered as a useful medicine, but Linnæus affirms that, from his own knowledge, children have lost their lives by an over dose of it. That might, however, be the case with some of our best medicines.

The Alpine Columbine has blue flowers tipped with a yellowish green, blowing in May and June. (Biennial.)

The Canadian Columbine flowers in April: the flowers are yellow on the in, red on the outside. (Perennial.)

The Columbines may be increased by parting the roots; but, as they are apt to degenerate, are most commonly raised from seed: these will not grow to flower till the second year; and, as you cannot be sure

* The Botanist.

of the kinds they will produce, it is better to procure the plants from a nursery. They should have a little water, two or three times a week, in dry weather; and may remain in the open air.

Gawin Douglas speaks of the Columbine as black, from the deep purple which some of them take:—

“Floure-damas, and columbe blak and blew.”

This has been differently expressed in Mr. Fawkes’s modernized version; and not happily, for the Columbine drops its head:—

“And columbine advanced his purple head.”

W. Browne speaks of it in all its colours:

“So did the maidens with their various flowers
Decke up their windowes, and make neat their bowers;
Using such cunning, as they did dispose
The ruddy piny with the lighter rose,

The monk’s-hood with the bugloss, and intwine
The white, the blew, the flesh-like columbine
With pinks, sweet-williams; that, far off, the eye
Could not the manner of their mixture spye.”

He tells us that the King-cup is an emblem of jealousy; that—

“The columbine in tawny often taken,
Is then ascribed to such as are forsaken;
Flora’s choice buttons, of a russet dye,
Is hope even in the depth of misery;

The pansie, thistle all with prickles set,
The cowslip, honeysuckle, violet,
And many hundreds more that grace the meades.

Spring commences on the 6th of March, and lasts ninety-three days.

According to Mr. Howard, whose practical information concerning the seasons is highly valuable, the medium temperature during spring is elevated, in round numbers, from 40 to 58 degrees. “The mean of the season is 48.94°—the sun effecting by his approach an advance of 11.18° upon the mean temperature of the winter. This increase is retarded in the forepart of the spring by the winds from north to east, then prevalent; and which form two-thirds of the complement of the season; but proportionately accelerated afterwards by the southerly winds, with which it terminates. A strong evaporation, in the first instance followed by showers, often with thunder and hail in the latter, characterises this period. The temperature commonly rises, not by a steady increase from day to day, but by sudden starts, from the breaking in of sunshine upon previous cold, cloudy weather. At such times, the vapour appears to be now and then thrown up, in too great plenty, into the cold region above: where being suddenly decomposed, the temperature falls back for awhile, amidst wind, showers, and hail, attended, in some instances, with frost at night.”

In “*Sylvan Sketches*,” a charming volume by the lady who wrote the “*Flora Domestica*,” it is delightfully observed, that, “the young and joyous spirit of spring sheds its sweet influence upon every thing: the streams sparkle and ripple in the noon-day sun, and the birds carol tipseily their merriest ditties. It is surely the loveliest season of the year.” One of our living minstrels sings of a spring day, that it

Looks beautiful, as when an infant wakes
From its soft slumbers;

and the same bard poetically reminds us with more than poetical truth, that at this season, when we

See life and bliss around us flowing,
Wherever space or being is,
The cup of joy is full and flowing.—*Bowring*.

Another, whose numbers are choralled by worshipping crowds, observes with equal truth, and under the influence of high feelings, for seasonable abundance, that

To enjoy is to obey.—

In spring the ancient Romans celebrated the *Ludi Florales*. These were annual games in honour to Flora, accompanied by supplications for beneficent influences on the grass, trees, flowers, and other products of the earth, during the year. The Greeks likewise invoked fertility on the coming of spring with many ceremonies. The remains of the Roman festivals, in countries which the Roman arms subdued, have been frequently noticed already; and it is not purposed to advert to them further, than by observing that there is considerable difficulty in so apportioning every usage in a modern ceremony, as to assign each to its proper origin. Some may have been common to a people before they were conquered; others may have been the growth of latter times. Spring, as the commencement of the natural year, must have been hailed by all nations with satisfaction; and was, undoubtedly, commemorated, in most, by public rejoicing and popular sports.

Columbine is the emblem of *Folly*.



Aloe Socotrina.

ALOE SOCOTRINA.—SOCOTRINE ALOE.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ASPHODELEÆ.—THE ASPHODEL TRIBE.

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FIG. (a) represents a flower cut open; (b) the germen and style.

THE Socotrine Aloe is a perennial plant, with a strong fibrous root; flowering in winter and spring. The stem is rounded, smooth, erect, of a glaucous green colour towards the top beset with ovate bracteal scales, and rises to the height of three or four feet. The leaves are numerous, spreading, and proceed from the upper part of the root; they are about two feet long, broad at the base, tapering gradually to a point, thick, fleshy, succulent, channelled, glaucous, smooth, and armed at the edges with remote, whitish, horny teeth. The flowers are produced in terminal spikes, of a purple or reddish colour; each flower being accompanied with a single ovate, acute, broad, membranous bracte, white, with three green streaks, and shorter than the corolla. The perianth is petaloid, bell-shaped, and divided into six narrow segments; the three inner lobes are white with three green lines; the outer ones narrower and less concave. The filaments are six, tapering yellowish, exserted from the receptacle, and furnished with oblong, orange-coloured anthers; the germen is oblong, with a simple slender style, and an obtuse stigma. The capsule is oblong, 3-celled, containing many angular seeds.

All the species of this extensive genus are natives of hot climates, and most of them grow at the Cape of Good Hope.

It is now well known that numerous individuals of the Aloe family furnish the concrete juice, met with in commerce under the name of *aloes*; but the subject is still surrounded with so many difficulties, that we must crave the indulgence of our readers, should we be so unfortunate as to perpetuate errors, or fail to increase their present stock of knowledge. Six different kinds of aloes are met with in commerce:—

1st. *Barbadoes aloes*, also called *Hepatic aloes*, and *extract of the common aloe*, is, as stated before, the produce of the *A. vulgaris*. The following account of the culture pursued at Barbadoes, and of the method by which the juice is collected, was communicated by Mr. Millington to the Medical Journal, vol. viii.

“The lands in the vicinity of the sea, that is, from two to three miles, which are rather subject to draught than otherwise, and are so stony and shallow, as not to admit of planting sugar-canes with any prospect of success, are generally found to answer best for the aloe-plant. The stones, at least the largest ones, are first picked up, and either packed in heaps upon the most shallow, barren spots, or laid round the field as a dry wall. The land is then ploughed lightly, and very carefully cleaned of noxious weeds, lined at one foot distance from row to row, and the young plants set, like cabbages, at about five or six inches from each other. This regular mode of lining, and setting the plants, is practised by the most exact planters, in order to facilitate the weeding of them by hand very frequently, because, if they are not kept perfectly clean and free from weeds, the produce will be but very small.

“They will bear being planted in any season of the year, even in the driest, as they will live on the surface of the earth for many weeks, without a drop of rain. The most general time, however, of planting them is from April to June. In the March following, the labourers carry a parcel of tubs and jars into the field, and each takes a slip or breadth of it, and begins by laying hold of a bunch of the blades, as much as he can conveniently grasp with one hand, while with the other he cuts it just above the surface of the earth, as quickly as possible, that the juice may not be wasted, and then places the blades in the tub, bunch by bunch, or handful by handful. When the first tub is thus packed quite full, a second is begun, each labourer having two; and by the time the second is full, all the juice is generally drained out of the blades in the first tub. The blades are then lightly taken out, and thrown over the land by way of manure, and the juice is poured out into a jar. The tub is then filled with blades, and so alternately till the labourer has produced his jar full, or about four gallons and a half, which is often done in six or seven hours, and he has then the remainder of the day to himself, it being his employer’s interest to get each day’s operation as quickly done as possible.

“I should observe, that although aloes are often cut in nine, ten, or twelve months after being planted, they are not in perfection till the second and third year; and that they will be productive for ten or twelve years, or even longer, if good dung, or manure of any kind, be strewed over the field once in three or four years.

“The aloe juice will keep for several weeks without injury. It is, therefore, not boiled till a sufficient quantity is procured to make it an object for the boiling house. In the large way, three boilers, either of iron or of copper, are placed to one fire, though some have but two, and the small planters only one. The boilers are filled with the juice, and as it ripens, or becomes more inspissated, by a constant but regular fire, it is ladled forward from boiler to boiler, and fresh juice is added to that farthest from the fire, till the



juice in that nearest the fire (by much the smallest of the three, and commonly called by the name of *tatch* as in the manufactory of sugar) becomes of a proper consistency to be skipped or ladled out into *gourds*, or other small vessels used for its final reception. The proper time to ladle it out is when it has arrived at what is termed a resin height, or when it cuts freely, or drops in thin flakes. A little lime water is used by some aloe boilers, during the process, when the ebullition is too great. As to the sun-dried aloes, which are more approved for medicinal purposes, very little is made in Barbadoes. The process is very simple. The raw juice is either put into bladders, left quite open at the top, and suspended in the sun, or in broad shallow trays of wood, pewter, or tin, exposed also to the sun, every dry day, until all the fluid parts are exhaled, and a perfect resin formed, which is then packed up for use or for exportation."

**2nd Socotrine aloes.**—The real Socotrine aloes, which is rarely met with in commerce, is produced by the *A. Socotrina*. It grows in abundance on the island of Zocotora, which was first discovered by the Portuguese in 1503. The plant is also found in many parts of the South of Africa, particularly in the kingdom of Melinda, where the greater part of the extract is prepared that is now sold under the name of Socotrine, and Cape aloes. India, Borneo, and Sumatra, also furnish us with this kind of aloes, which are sometimes packed in casks, and at others in skins.

In the island of Zocotora, the inhabitants cut or chop the leaves, and make a slight pressure to obtain the juice, which is left to settle. It deposits a feculent matter, which is thrown away. The supernatant liquor thus freed from its grosser parts, is left to spontaneous evaporation; and it is this difference in the two processes that accounts for the superiority of the real Socotrine aloes over that of the Cape: for there, the Hottentots cut the end of the leaves and catch the liquor which flows from them in proper vessels, the lower leaves of the plant generally serving for canals to conduct it into them. The juice thus obtained, is at once reduced to a suitable consistence over the fire, and afterwards packed in boxes containing from one to three hundred pounds.

Socotrine aloes is in solid fragments, compact, heavy, and brittle. It is of a yellowish red or brown colour, in proportion to its purity; is glossy, and breaks with a smooth conchoidal fracture. The thin edges are reddish, and semi-transparent. It is rendered friable by cold, softens by heat, and is adhesive to the touch: it is easily reduced to a powder, which is of a golden yellow colour: but it soon condenses again into a mass, the particles of which adhere strongly. The odour is strong, *sui generis*: the inferior sorts fetid and nauseous. The taste is bitter, resembling bile. According to Bouillon La Grange, and Vogel, it is composed of 22 parts of resin, and 68 of extractive matter. It dissolves almost entirely in spirits of wine, and yields a volatile oil by distillation. It is considered to be more mild in its operation than the other kinds of aloes. The *Cape aloes* differ from the Socotrine in possessing a stronger and less agreeable odour. They are also of a less yellow colour, and less vitreous in appearance. The powder is of a greenish yellow, resembling gamboge, but less bright.

**MEDICAL PROPERTIES AND USES.**—It is the *A. vulgaris* and *A. Socotrina*, that produce the gum-resins used for pharmaceutical purposes; and they differ little in their medicinal effects. They are warm stimulating purgatives, particularly adapted for what is termed the melancholic temperament; and exercise a tonic power, proved by their extreme bitterness, and the beneficial influence in chronic affections of the stomach and bowels, as vomiting, flatulence, loss of appetite, and other symptoms usually denominated dyspeptic. Their operation is slow, but generally effective, nor do large doses appear to exert much more power than smaller ones. The medium dose of aloes is from five to ten grains, but they are generally combined with other purgatives to obviate habitual costiveness; to remove viscosity of the intestines; and from their stimulating and tonic powers are well adapted for jaundice, chlorosis, hypochondriasis, and scrofula.

In doses of two drachms, aloes produce nauseating and depressing effects upon the horse, and are therefore much used in the active diseases of this noble animal, when it is necessary to diminish the force of the circulation. From six to eight drachms of aloes, combined with soap and other ingredients, also constitute the purgative-ball usually administered.

The following are some of the principal Quack or Patent Medicines that owe their activity chiefly to the aloes they contain:—

*Anderson's Pills* consist of Barbadoes aloes, with a proportion of jalap and oil of aniseed.

*Hooper's Pills.*—Pil. aloes with myrrh, or Rufus' pill; sulphate of iron; and canella bark, to which is added a portion of ivory black. Dr. Barlow, one of the physicians to the Bath Hospital, relates a case in which these pills were retained in the intestines nearly twelve months. The facts detailed in this case are valuable, from the cautions which they suggest to regular practitioners,—who in administering pills with iron, should be careful to ensure their ready solution by appropriate combination, and also by having them always freshly prepared.—See "*Lancet*," vol. xi. p. 806.

*Dixon's Antibilious Pills.*—These are composed of aloes, scammony, rhubarb, and tartar emetic.

*Speedimen's Pills.*—Myrrh, aloes, rhubarb, of each one ounce, extract of chamomile, half an ounce; beat into a mass with syrup, and divided into four-grain pills.

*James' Analeptic Pills.*—Gam ammoniacum, pill aloes with myrrh, antimonial powder, of each equal parts, made into a mass with tincture of castor.

The Aloe is the emblem of *Bitterness*.









*Epidendrum radicans*



## EPIDENDRUM RADICANS.—ROOTING EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ORCHIDACEÆ.—THE ORCHIS TRIBE.

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GENERIC CHARACTER.—*Calyx* wanting. *Corolla* with five oblong spreading petals. *Labellum* without a horn at the base, tubular, embracing the column, with a broad erect plate. *Column* terete, placed below the germen, gibbous. *Anthers* concave. *Capsule* oblong, three-sided, one celled, three valved. *Seeds* numerous, extremely minute roundish.

SPECIFIC CHARACTER.—*Stem* simple, leafy, throwing out a long whitish-root opposite each leaf. *Leaves* distichous, subcordately ovate, obtuse. *Racemes* lengthening. *Flowers* bright orange-scarlet. *Sepals* and *petals* lanceolate, acute, spreading. *Lip* with two erect compressed calli at the base, from between which an elevated ridge proceeds down the centre, three-lobed; lateral lobes broad, rounded, toothletted at the margin, intermediate lobe cuneate, fimbriated, and deeply emarginate at the apex, entire on both sides.

This elegant species belongs to that section of *Epidendrum* named *Amphiglottium*, distinguished by "the long leafy stem with distichous leaves, the want of every tendency to form pseudo-bulbs, a terminal peduncle covered with close sheaths, and a labellum entirely united to the column." In the recent consideration of this group, by Dr. Lindley, four species besides the present are included in the same division of the subsection with racemose flowers. Two of these approach our subject so narrowly in the general form, jagged edges, and colour of the flowers; in possessing the two tubercular protuberances at the base of the lip, and an elevated plate passing between them down the centre; that the unpractised eye might fail to detect their distinction.

It is only when we descend to the minutia of botanical points, that the dissimilarity of their several parts becomes evident. Dr. Lindley has pointed out the following distinctions;—" *E. radicans* has the lateral lobes of the labellum rounded and toothletted only, not lacerated, and it produces coarse pale green roots from its stems; *E. cinnabarinum* has the lateral lobes of the labellum deeply lacerated, while the central lobe is contracted in the middle, and then suddenly wedge-shaped, with its angles prolonged into one or two fine teeth. *E. Schomburgkii* has the lateral lobes only toothed, with the centre lobe gradually widened to the point, and there toothletted without being at all truncate; the lobes of the lip are confluent in what I take to be a variety of that species." To these we may add, that *E. radicans* produces a root upon the stem opposite each leaf; whilst whatever roots issue from the stem of either of the other species, are confined to the lower portion, and come without any regard to the order of the foliage.

The first plants were received in England from Guatemala, in 1839. In the summer of 1844 we saw a specimen blooming in the superb collection of Mrs. Lawrence, at Ealing Park, which, so far as we can learn, was the first that displayed its flowers in this country. Since then we have been favored with specimens by Mr. Brewster, gardener to Mrs. Wray, at Oakfield, Cheltenham, who has also kindly furnished us with the following remarks:—

"Mr. Skinner sent the plant to Oakfield in 1842. It commenced flowering in the beginning of 1845, and has now covered a wire basket with its long stems, each crowned with a head of flowers. Mr. Skinner says its habit is, terrestrial, growing among long grass and dried leaves. It flowers in October, November, December, and January. It is a lovely plant; and particularly if growing in masses, forms an object of attraction difficult to pass, when seen on mountain sides, and in the deep valleys."

The head of flowers sent us contained twenty-three expanded blossoms, much more rich and brilliant in colour than those of either of its two allies; hence, we may readily imagine what a delightful object it must constitute in its native haunts where it grows in any considerable quantity, peeping with its flaming vermilion flower heads from among the green herbage; and thrusting out its thickened roots from almost every inch of the stem, to suck in sustenance from the humid atmosphere, and drink the dew that settles upon them.*

The beauty and variety of flowers, the fragrance and freshness which we are insensibly led to associate with them, have long been themes for the poet and naturalist; but really not more so than the subject deserves. The endless forms in which plants appear, their adaptations to certain situations, the peculiar properties which many species possess, though all grow on the same soil, the wonderful metamorphoses which they undergo from seed to plant, and from plant and flower to seed again, not to speak of the amenity

* Paston's Magazine of Botany.

and beauty with which they invest the landscape, or of the utility they confer as articles of food, medicine, and clothing, are all subjects of never-failing interest to a reflective mind. But every one has not the opportunity of enjoying this contemplation in the field; and even if he had, the produce of one climate differs so widely from that of another, that his own district would furnish him with a mere fraction of the numerous vegetable families. Knowledge, however, has so far overcome this difficulty; for by the aid of the sheltered garden, the conservatory, and hothouse, the genera of any country can be brought within the compass of a few superficial acres. What can be thus accomplished by the scientific gardener, may be imitated on a small scale by domestic culture, and with comparatively less expense, as our apartments yield that shelter and temperature which it costs the gardener so much to obtain.

The individual, therefore, who can rear in his window-recess, in his lobby, or around his porch, the shrubs and flowers of his own and other lands, has always a subject for contemplation before him; something to engage the attention, and to preserve the mind from the listlessness of ennui, or from positively pernicious pursuits. Any member of a family who has a little stand of plants to water, to clean, and prune, has always a pleasant daily recreation before him; his love and care increase with these objects; the simple duty becomes necessary to his existence; and he has thus, what so many are miserable for the want of, namely, something to occupy hours of listlessness or leisure. Again, plants are objects of beauty and ornament. Why is yonder lowly cottage more lovely and inviting than the large farmhouse on the other side of the river? Simply because its walls are trellised with the rose and honeysuckle, and its porch with the clambering hop, whose dark-green contrasts so finely with the whitewashed front; while the latter is as cold and uninviting as bare stone-walls can make it. So it is with any apartment, however humble. The little stand of flowers in the window recess, with their green leaves and brilliant blossoms, add a charm and freshness to the place; and we will answer for it, that wherever these are, the furniture, though mean, will be clean and neatly arranged.

The in-door culture of plants is also intimately connected with the sanitary condition of our dwellings. The oxygen of the atmosphere is indispensable to the respiration of animals; it purifies their blood, and affords them internal heat; and, united with certain elements, is expired in the form of carbonic acid gas (a compound of oxygen and carbon.) This gas, which is deleterious to animal life, constitutes the main nourishment of plants which absorb it, appropriate its carbon, and restore its oxygen to the atmosphere, again to be breathed in purity by men and animals. It is true that pure air is necessary alike to the life of plants and animals; but the amount of oxygen absorbed by the former is by no means equal to that which they restore, and thus through their agency the atmosphere is kept in healthy equilibrium. It is only during the day, and under the influence of light, however, that carbonic acid is employed for the nutrition of plants; that which they absorb during night is returned into the atmosphere with the water, which is continually evaporating from the surface of the leaves. From this explanation it will be understood how the night air of an apartment containing flowers is said to be less healthy than the atmosphere which pervades it during the day; though under ordinary states of ventilation, no danger need be apprehended from this source.* Besides their directly purifying influence, plants also tend indirectly to the health of dwelling apartments. For their sake the window that contains them will be oftener cleaned, the sash will be more frequently thrown open, and the air and sunshine intended for them will also lighten and purify the interior of the apartment.

It may perhaps be objected that such a recreation requires more time than you can bestow; that it is too expensive for you; and that it requires a greater knowledge of horticulture than you possess. To all these objections we answer—No. If your little conservatory is once in a healthy condition, a very small amount of care will be sufficient to preserve it so. A few minutes before or after breakfast will keep a large array of plants in excellent order; and the duty may be intrusted to any grown-up member of a family. We know a surgeon in an extensive provincial practice—one of the most laborious of callings—and yet this gentleman has managed, during the last ten or twelve years, to conduct the most extensive conservatory of cactaceæ and epiphytes in Scotland, besides constructing most of the shelving and erection with his own hands. As to the expense, it is a mere trifle, unless the individual indulges in the purchase of new and pet varieties, as advertised by the nurseryman. Common flower-pots can be had from any pottery from one penny to sixpence each, and ornamental ones for about a third more. The soil costs nothing; and a very respectable show of geraniums, hydrangeas, monthly roses, verbenas, scented myrtles, fuchias, cactuses, aloes, and the like, may be had by exchanging slips with neighbouring cultivators, or originally from some gardener for a trifle.

* From recent experiments on the respiration of plants, Mr. Heseldine Pepys has arrived at the following general conclusions:—
1. That vegetation is *always* operating to restore the surrounding atmospheric air to its natural condition, by the absorption of carbonic acid, and the disengagement of oxygenous gas; that this action is promoted by the influence of light, but that it continues to be exerted, although more slowly, even in the dark. 2. That carbonic acid is never disengaged during the healthy condition of the leaf. 3. That the fluid so abundantly exhaled by plants in their vegetation, is pure water, and contains no trace of carbonic acid. Should this be the case, which they emit be too powerful to be agreeable.



Marrubium vulgare.

MARRUBIUM VULGARE.—THE WHITE HOREHOUND.

CLASS XIV. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

FIG. (a) is a magnified flower cut open to show the position of the anthers; (b) the germen and style; (c) a nut; (d) the calyx; (e) the same, cut open; (f) a bractea.

WHITE HOREHOUND is common in most parts of Europe as well as in Britain, on waste grounds and among rubbish particularly in warm, dry situations, flowering copiously during the latter part of the summer. Willdenow enumerates fourteen species of *Marrubium*, and Mr. Don, in the "*Hortus Cantabrigi-ensis*," notices thirteen that are cultivated in this country, most of which are European plants. Dr. Sibthorp has also added a beautiful new species, in the "*Flora Græca*," called *velutinum*.

The root is perennial, woody, and fibrous, sending up several stems, branching from the bottom, about eighteen inches high, quadrangular, leafy, and clothed with fine down. The leaves are roundish or oblong, pointed, crenate, wrinkled, veined, hoary, and stand in opposite pairs, on thick broad footstalks. The flowers are white, and produced in dense convex whorls, at the axillæ of the leaves; they are sessile, and furnished with setaceous, awned bracteas. The calyx is tubular, funnel shaped, furrowed, and divided at the margin into ten narrow teeth, recurved at the point, the five alternate ones being smallest. The corolla is monopetalous, and consists of a cylindrical tube opening at the mouth into two lips, the upper of which is erect, linear, and cloven, the under broader, reflexed, and divided into three deep lobes, with the lateral segments acute, and the middle one broad and slightly scalloped at the end. The filaments are, two long and two short, concealed within the tube of the corolla, and furnished with small oblong anthers. The germen is 4-lobed, surmounted by a thread-shaped style, with a cloven stigma. The nuts are four, at the bottom of the calyx.

QUALITIES.—the leaves have a strong peculiar smell of an aromatic kind, which is completely lost by keeping. To the taste they are bitter, penetrating, diffusive, and their flavour is durable in the mouth. "The infusion reddens tincture of litmus, gives a deep olive-green precipitate with sulphate of iron, a brown with nitrate of silver, and a pale yellow with corrosive sublimate; acetate and superacetate of lead do not affect it. The active principles of horehound therefore appear to be a bitter extractive, volatile oil, and gallic acid."

MEDICAL PROPERTIES AND USES.—This plant, which is still a very popular remedy with the poor, is tonic, and when taken in considerable doses is gently aperient. It was formerly much commended for asthma, jaundice, cachexy, and other obstructions. It has however given way to more active remedies, but although seldom employed by medical men, is said by Dr. Thompson to have been of decided use in cases of phthisis. A drachm of the leaves in powder, or an ounce of the expressed juice, are commonly ordered for a dose. The infusion is made with one ounce of the dried leaves, and a pint of boiling water, and given in the quantity of a wine-glassful twice or thrice a day.*

DECOCTUM MARRUBII COMPOSITUM.

Rj. Marrubii fol. exsicc. $\mathfrak{z}$ j.

Glycyrrhizæ rad. concisæ.

Lini usitatis sem. contus. sing. $\mathfrak{z}$ ss.

Aquæ ferventis Ojss. Macera per horas

quatuor, et cola.—Dosis $\mathfrak{z}$ j. ad. $\mathfrak{z}$ ij.

* The nostrum sold as *Balsam of Horehound* consists, according to Paris, of infusion of horehound and liquorice root, with double the portion of proof spirit or brandy; to which is added opium, camphor, benzoin, squills, oil of aniseed and honey.

The name of this month is derived from the verb *aperire*, which signifies to open, because seeds germinate, and at this season flowers begin to blow; yet Macrobius affirms that it is derived from a Greek word signifying *aphrilis*, or descended from Venus, or born of the scum of the sea, because Romulus dedicated the month to Venus. This may be the real derivation; the former is the most natural.

"April," says the author of the *Mirror of the Months* "is spring—the only spring month that we possess—the most juvenile of the months, and most feminine—the sweetest month of all the year; partly because it ushers in the May, and partly for its own sake, so far as any thing can be valuable without reference to any thing else. It is worth two May's, because it tells tales of May in every sigh that it breathes, and every tear that it lets fall. It is the harbinger, the herald, the promise, the prophecy, the foretaste of all the beauties that are to follow it—of all, and more—of all the delights of summer, and all the 'pride, pomp, and circumstance of glorious autumn.' It is fraught with beauties that no other month can bring before us, and

'It bears a glass which shews us many more.'

Its life is one sweet alternation of smiles and sighs and tears, and tears and sighs and smiles, till it is consummated at last in the open laughter of May."

By the same hand we are directed to observe, "what a sweet flush of new green has started up to the face of this meadow! And the new-born daisies that stud it here and there, give it the look of an emerald sky, powdered with snowy stars. In making our way to yonder hedgerow, which divides the meadow from the little copse that lines one side of it, let us not take the shortest way, but keep to the little footpath; for the young grass is as yet too tender to bear being trod upon; and the young lambs themselves, while they go cropping its crisp points, let the sweet daisies alone, as if they loved to look upon a sight as pretty and as innocent as themselves." It is further remarked that "the great charm of this month, both in the open country and the garden, is undoubtedly the infinite *green* which pervades it every where, and which we had best gaze our fill at while we may, as it lasts but a little while,—changing in a few weeks into an endless variety of shades and tints, that are equivalent to as many different colours. It is this, and the budding forth of every living member of the vegetable world, after its long winter death, that in fact constitutes *the spring*; and the sight of which affects us in the manner it does, from various causes—chiefly moral and associated ones; but one of which is unquestionably physical: I mean the sight of so much tender green after the eye has been condemned to look for months and months on the mere negation of all colour, which prevails in winter in our climate. The eye feels cheered, cherished, and regaled by this colour, as the tongue does by a quick and pleasant taste, after having long palated nothing but tasteless and insipid things.—This is the principal charm of spring, no doubt. But another, and one that is scarcely second to this, is the bright flush of blossoms that prevails over and almost hides every thing else in the fruit-garden and orchard. What exquisite differences and distinctions and resemblances there are between all the various blossoms of the fruit-trees; and no less in their general effect than in their separate details! The almond-blossom, which comes first of all, and while the tree is quite bare of leaves, is of a bright blush-rose colour; and when they are fully blown, the tree, if it has been kept to a compact head, instead of being permitted to struggle, looks like one huge rose, magnified by some fairy magic, to deck the bosom of some fair giantess. The various kinds of plum follow, the blossoms of which are snow-white, and as full and clustering as those of the almond. The peach and nectarine, which are now full blown, are unlike either of the above; and their sweet effect, as if growing out of the hard bare wall, or the rough wooden paling, is peculiarly pretty. They are of a deep blush colour, and of a delicate bell shape, the lips, however, divided, and turning backward, to expose the interior to the cherishing sun. But perhaps the bloom that is richest and most *promising* in its general appearance is that of the cherry, clasping its white honours all round the long straight branches, from heel to point, and not letting a leaf or a bit of stem be seen, except the three or four leaves that come as a green finish at the extremity of each branch. The other blossoms, of the pears, and (loveliest of all) the apples, do not come in perfection till next month."



Amanita muscaria.

AMANITA MUSCARIA.—FLY AMANITA.

CLASS XXIV. CRYPTOGRAMIA.—ORDER IV. FUNGI.

NATURAL ORDER, FUNGI.—THE MUSHROOM TRIBE.

MANY species of this order are used as food, or rather as condiments; and several of them are known to rank among the most active of the vegetable poisons. Accidents arising from the poisonous Fungi being taken through mistake for the esculent mushrooms, are frequent both in this country and on the continent, especially in France, where many species are eaten that are rejected by us. Almost the only ones in use in this country are the *Agaricus campestris* and *oreades*, the *deliciosus*, which the ancient Romans esteemed the greatest of luxuries, the truffle, and the morel. Even some of these, under certain circumstances, have proved injurious, if not poisonous; hence the greatest caution is necessary in selecting any species of this tribe for food. Haller informs us that the Russians eat the whole race, using the poisonous ones as means of intoxication. It appears, however, that these are used after a process of fermentation, so that their noxious effects are, probably, diminished. The poisonous species found in this country have not been correctly determined; those most commonly fatal are *Amanita muscaria*, and its varieties; the *Agaricus semiglobatus*, and *Agaricus globosus*.

The *Amanita muscaria* is one of the largest and most beautiful of the Agaric tribe, and really deserves the name of "imperial," applied to it by Batsch; "for the most indifferent person must be attracted by the glowing hues of its ample pileus, its regular form, tall pillar-like stipes—extremely conspicuous, even at a distance, in the shady recesses of its native woods." It is found in woods throughout the whole kingdom, and is extremely abundant in the Highlands of Scotland.

The pileus is from three to six inches in diameter, convex at first, at length nearly flat, striated at the margin, varying very much in colour, being mostly bright red or orange, but sometimes liver-coloured, yellowish, or even whitish, and beset with downy, angular warts. The warts are white, or yellowish, prominent, pretty regular, scattered over the surface, but sometimes wanting. The lamellæ are flat, adnate with the stipes, very numerous, broad, and whitish. The flesh is thick, and white, partaking to a small, depth of the colour of the pileus. The stipes are cylindrical, smooth, white, very straight, subsolid, from four to eight inches high, and bulbous at the base. The volva, according to Dr. Greville, is perfect only in extremely young plants, cracking immediately into pyramidal warts, which become less elevated, and more distinct, as the pileus expands, and generally leave a few traces upon the bulb, at the base of the stem.

QUALITIES AND CHEMICAL PROPERTIES.—Mushrooms are of rapid growth and speedy decay. When they putrefy, they give out an extremely unpleasant odour, and approach animal matter more closely than other vegetable substances. Braconnot, who, with M. Vauquelin, has analyzed a great number of species, distinguished the insoluble spongy portion, which characterises mushrooms by the name of *fungin*. It approaches woody fibre in its properties; but is sufficiently distinguishable by various characters, particularly by constituting a nourishing article of food, and being much less soluble in alkaline leys. Braconnot also ascertained the existence of two new acids in mushrooms. One of these is termed *boletic acid*, and consists of irregular four-sided prisms, of a white colour, and permanent in the air: the other acid, which constitutes a very general ingredient in mushrooms, is called *funyic acid*. Both may be obtained from the expressed juice of the *Boletus pseudo igniarius*, the latter also from *B. juglandis*, *Merulius cantharellus*, *Peziza nigra*, and *Phallus impudicus*. Proust has likewise discovered in them the benzoic acid, and phosphate of lime.

AMANITA muscaria. This was examined by Vauquelin, who extracted from it an animal matter, insoluble in alcohol, osmazome, a fatty matter, muriate, phosphate, and sulphate of potash.

POISONOUS EFFECTS. The symptoms which generally arise from eating the noxious Fungi, are pains of the stomach, nausea, &c.; sense of heat of the bowels, faintings, cramps of the lower extremities, con-

vulsions, sometimes general, sometimes partial, and unquenchable thirst succeed: the pulse is small, hard, and very frequent. When these symptoms, after having continued a certain time, do not diminish in consequence of the remedies administered, vertigo, stupor, and delirium, affect some subjects, and are only interrupted by pains and convulsions. In others there is no drowsiness; the pains and convulsions exhaust the strength, faintings and cold sweats come on, and death puts a period to this series of suffering, after having been foreseen and announced by the patient himself, who has not lost his senses for a single moment.

Poisonous Fungi do not in general manifest their action till six or eight hours after they are eaten, and twelve or sixteen occasionally elapse. In cows and other cattle, they have been known to produce nauseous milk, swellings of the abdomen, inflammation of the intestines, obstructions, diarrhoeas and death. In sheep, they are said to bring on a scirrhus liver, a cough, general wasting, and dropsy.

1. *Amanita muscaria*. In the Toxicologie Générale of M. Orfila, several cases are detailed of the fatal effect of this species on the animal economy. Several French soldiers ate, at two leagues from Polosk, in Russia, mushrooms of the above kind. Four of them, of a robust constitution, who considered themselves proof against the consequences under which their feebler companions were beginning to suffer, refused obstinately to take an emetic. In the evening the following symptoms appeared: anxiety, sense of suffocation, ardent thirst, intense griping pains, a small and irregular pulse, changed expression of countenance, violet tint of the nose and lips, with general trembling. These symptoms becoming worse, they were carried to the hospital. Coldness and livid colour of the limbs, a dreadful delirium, and acute pains accompanied them to the last moment. One of them sunk a few hours after his admission into the hospital; the three others had the same fate in the course of the night. Haller relates that six persons of Lithuania perished at one time by eating the *A. muscaria*; and that in Kamtschatka it had driven others raving mad. The inhabitants of the latter country prepare a liquor from it, and from a species of *Epilobium*, which, taken in small quantities, inebriates. It has not, however, been clearly ascertained whether the species which grows in this country, and in the south of Europe, be the same as that which is found in Kamtschatka. The properties of this variety are exceedingly curious, and have been fully described in an Essay by Dr. Langsdorf, quoted by Dr. Greville. The inhabitants of the north-eastern parts of Asia use it in the same manner as ardent spirits, or wine, to produce intoxication. These fungi are collected in the hottest months, and hung up by a string in the air to dry; some dry of themselves on the ground, and are said to be far more narcotic than those artificially preserved. Small deep-coloured specimens, thickly covered with warts, are also said to be more powerful than those of a larger size and paler colour.

The usual mode of taking this fungus is to roll it up like a bolus, and swallow it without chewing, which the Kamtschadales say, would disorder the stomach. It is sometimes eaten fresh in soups and sauces, and then loses much of its intoxicating property; when steeped in the juice of the berries of *Vaccinium uliginosum*, its effects are those of strong wine. One large, or two small fungi, is a common dose to produce a pleasant intoxication for a whole day, particularly if water be drank after it, which augments the narcotic principle. The desired effect comes on one or two hours after taking the fungus. Giddiness and drunkenness result from the fungus, in the same manner as from wine or spirits. Cheerful emotions of the mind are first produced, involuntary words and actions follow, and sometimes at last an entire loss of consciousness. It renders some remarkably active, and proves highly stimulant to muscular exertion; with too large a dose, violent spasmodic effects are produced.

So very exciting to the nervous system, in some individuals, is this fungus, that the effects are often very ludicrous. If a person under its influence wishes to step over a straw, or small stick, he takes a stride or a jump sufficient to clear the trunk of a tree; a talkative person cannot keep secrets or silence; and one fond of music is perpetually singing.

Linnæus says, that flies are killed by this fungus, when infused in milk, hence its name *muscarius*; and the same author also tells that the expressed juice, rubbed on walls and bedsteads, effectually expels bugs. In the north of Europe, it is sometimes administered in doses of from ten to thirty grains, by the vulgar in epilepsy, palsy, and as an application to foul ulcers. More recently a tincture of it has been employed internally by M. Reinhard, for scaly affections of the skin, and in obstinate expectorations, both mucous and purulent. The dose is from thirty to forty drops in any proper vehicle.



Epidendrum nutans.

EPIDENDRUM NUTANS.—NODDING EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDACEÆ.—THE ORCHIS TRIBE.

CHARACTER OF THE GENUS, EPIDENDRUM. External folioles of the perigone spreading, nearly equal; the internal equal, or narrower, very seldom broader. The Labellum, by means of its claws, either entirely or partly cohering to the margins of the column, the limb entire or divided, the disc generally callous, ribbed, or tuberculated; the limb is also occasionally prolonged into a spur, adhering to the ovary. Column elongated, clinandrium margined, often fimbriated. Anther fleshy, two-four-celled. Pollen-masses four, with a similar number of double tails.

DESCRIPTION OF THE SPECIES, EPIDENDRUM NUTANS. EPIPHYTE. Stem simple, round, leaves distichous, undulating, obtuse. Inflorescence racemose, nodding, many-flowered. Flowers of a greenish colour, the external folioles oblong-lanceolate, the internal linear-lanceolate, obtuse, spreading; labellum three-lobed, lateral lobes cordate and ovate, the central lobe truncated, apiculate, having two callous points at the base, and three elevated veins. Ovary cohering with the prolonged spur of the labellum, so as to form a cuniculus.

POPULAR AND GEOGRAPHICAL NOTICE. The very extensive genus *Epidendrum*, containing nearly one hundred species, is peculiar to the New World, more especially the Southern part of America, and the West Indian Islands; several are natives of Mexico, but scarcely any extend farther North; yet the only epiphyte in the United States belongs to this genus, viz: *Epidendrum conopseum* (Robert Brown), which is found on the Magnolias of Carolina and Georgia, and hence sometimes called *Epidendrum Magnoliæ*. The species now figured grows on trees among the mountains of the Western side of the island of Jamaica. Many species of *Epidendrum* are remarkable for the exquisite odour of their flowers, which they are most apt to diffuse in the evening or during the night. Of such is the one now before us, which is thus among the number of the plants

"That keep
Their odour to themselves all day,
But when the sun-light dies away,
Let the delicious secret out,
To every breeze that roams about."

MOORE.

INTRODUCTION; WHERE GROWN; CULTURE. Brought to England in 1793. It grows in a pot on the stage of the stove, and requires sandy loam, with a large quantity of potsherds at the bottom, to ensure free drainage, which is the great requisite of these plants; or it may be suspended from the roof, attached to a branch.*

Prognostics of Weather and Horologe of Flora.—For Spring and Summer.†

Chickweed.—When the flower expands boldly and fully, no rain will happen for four hours or upwards: if it continues in that open state, no rain will disturb the summer's day: when it half conceals its miniature flower, the day is generally showery; but if it entirely shuts up, or veils the white flower with its green mantle, let the traveller put on his great coat, and the ploughman, with his beasts of drought, expect rest from their labour.

Siberian Sowthistle.—If the flowers of this plant keep open all night, rain will certainly fall the next day.

Trefoil.—The different species of trefoil always contract their leaves at the approach of a storm: hence these plants have been termed the husbandman's barometer.

African Marygold.—If this plant opens not its flowers in the morning about seven o'clock, you may be sure it will rain that day, unless it thunders.

The convolvulus also, and the pimpernel *anagalis arvensis*, fold up their leaves on the approach of rain: the last in particular is termed the poor man's weather-glass.

White thorns and dog-rose bushes.—Wet summers are generally attended with an uncommon quantity of seed on these shrubs; whence their unusual fruitfulness is a sign of a severe winter.

* The Botanist.

† From the "Perennial Calendar."

Besides the above, there are several plants, especially those with compound yellow flowers, which nod, and during the whole day turn their flowers towards the sun, viz: to the east in the morning, to the south at noon, and to the west towards evening; this is very observable in the sowthistle, *sonchus arvensis*: and it is a well-known fact, that a great part of the plants in a serene sky expand their flowers, and as it were with cheerful looks behold the light of the sun; but before rain they shut them up, as the tulip.

The flowers of the alpine whitlow grass, *draba alpina*, the bastard feverfew, *parthenium*, and the winter-green, *trientalis*, hang down in the night as if the plants were asleep, lest rain or the moist air should injure the fertilizing dust.

One species of woodsorrel shuts up or doubles its leaves before storms and tempests, but in a serene sky expands or unfolds them, so that the husbandman can pretty clearly foretell tempests from it. It is also well known that the mountain ebony, *bauhinia*, sensitive plants, and cassia, observe the same rule.

Besides affording prognostics, many plants also fold themselves up at particular hours, with such regularity, as to have acquired particular names from this property. The following are among the more remarkable plants of this description:—

Goatsbeard.—The flowers of both species of tragopogon open in the morning at the approach of the sun, and without regard to the state of the weather, regularly shut about noon. Hence it is generally known in the country by the name of go to bed at noon.

The princesses' leaf, or four o'clock flower, in the Malay Islands, is an elegant shrub so called by the natives, because their ladies are fond of the grateful odour of its white leaves. It takes its generic name from its quality of opening its flowers at four in the evening, and not closing them in the morning till the same hour returns, when they again expand in the evening at the same hour. Many people transplant them from the woods into their gardens, and use them as a dial or a clock, especially in cloudy weather.

The evening primrose is well known from its remarkable properties of regularly shutting with a loud popping noise, about sunset in the evening, and opening at sunrise in the morning. After six o'clock, these flowers regularly report the approach of night.

The tamarind tree *parkinsonia*, the nipplewort *lapsana communis*, the water lily *nymphaea*, the marygolds *calendulae*, the bastard sensitive plant *aeschynomene*, and several others of the diadelphia class, in serene weather, expand their leaves in the daytime, and contract them during the night. According to some botanists, the tamarind tree enfolds within its leaves the flowers or fruit every night, in order to guard them from cold or rain.

The flower of the garden lettuce, which is in a vertical plane, opens at seven o'clock, and shuts at ten.

A species of serpentine aloe, without prickles, whose large and beautiful flowers exhale a strong odour of the vanilla during the time of its expansion, which is very short, is cultivated in the imperial garden at Paris. It does not blow till towards the month of July, and about five o'clock in the evening, at which time it gradually opens its petals, expands them, droops, and dies. By ten o'clock the same night, it is totally withered, to the great astonishment of the spectators, who flock in crowds to see it.

The cerea, a native of Jamaica and Vera Cruz, expands an exquisitely beautiful coral flower, and emits a highly fragrant odour, for a few hours in the night, and then closes to open no more. The flower is nearly a foot in diameter; the inside of the calyx, of a splendid yellow; and the numerous petals are of a pure white. It begins to open about seven or eight o'clock in the evening, and closes before sunrise in the morning.

The flower of the dandelion possesses very peculiar means of sheltering itself from the heat of the sun, as it closes entirely whenever the heat becomes excessive. It has been observed to open, in summer, at half an hour after five in the morning, and to collect its petals towards the centre about nine o'clock.

Linnaeus has enumerated forty-six flowers, which possess this kind of sensibility: he divides them into three classes.—1. Meteoric flowers, which less accurately observe the hour of folding, but are expanded sooner or later according to the cloudiness, moisture, or pressure of the atmosphere. 2. Tropical flowers, that open in the morning and close before evening every day, but the hour of their expanding becomes earlier or later as the length of the day increases or decreases. 3. Equinoctial flowers, which open at a certain and exact hour of the day, and for the most part close at another determinate hour.



Whitfieldia lateritia.

WHITFIELDIA LATERITIA.—BRICK-COLOURED WHITFIELDIA.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, ACANTHACEÆ.—THE JUSTICIA TRIBE.

GENERIC CHARACTER.—*Calyx* ample, coloured, sub-infundibuliform, with two bracts at the base, deeply four or five cleft; segments lanceolate, acute, erect, concave, nerved; bracts mostly coloured, opposite, obovate, acute, three-nerved, appressed. *Corolla* between campanulate and funnel-shaped, twice the length of the calyx; tube with fifteen elevated ridges; limb two-lipped, spreading; upper lip smaller, two-cleft; lower lip three cleft, all the segments ovate, acute. *Stamens* four, didynamous, almost included, with an obsolete rudiment of a fifth. *Filaments* smooth. *Anthers* oblong-linear, two-celled; cells opposite, dehiscing longitudinally. *Ovary* compressed, ovate, glabrous, two-celled; cells bi-ovulate; ovules ascending. *Disk* hypogynous, large, fleshy, cup-shaped. *Style* scarcely exceeding the stamens, thread-shaped. *Stigma* small, capitate. *Fruit* unknown.

SPECIFIC CHARACTER.—*Plant* a smooth low-branching evergreen shrub. *Branches* spreading, terete, rather tortuous. *Leaves* opposite, entire, ovate or oblong-ovate, somewhat leathery, waved, penninerved. *Petioles* short, flat or slightly grooved above. *Racemes* terminal, somewhat one-sided, deflexed, *Pedicels* opposite (brachiate or cruciate,) drooping, bracteated at the base. *Bracteas* lanceolate, partially membranaceous, the lowest pair leaf-like; two other large, ovate, acute, opposite bracteas at the base of the calyx, appressed to it. *Flowers* slightly pubescent; calyx, corolla, and calycine bracts all brick-coloured. *Stamens* and *style* shorter than the corolla.

About the middle of last November we were favoured with specimens of this handsome stove shrub, by Mr. Jennings, the Earl of Derby's gardener at Knowsley Hall, Lancashire, and from these our figure was prepared. Mr. Jennings informs us, that it was received there in 1841, from Sierra Leone, and has proved an excellent thing, flowering through most of the winter months. Towards the close of last year, and for two or three months after, we observed specimens from the same source, flowering in the Royal Botanic Gardens at Kew.

On bestowing the above appellation, Sir William Hooker observes, "As a genus of Acanthaceæ, I can refer it to no described one, though its affinity (yet not very close) is probably with *Geissomeria*, Lindl.; and I have dedicated it to Thomas Whitfield, Esq., who at the risk of his life, and as we have reason to know, with much injury to his constitution, has made several voyages to, and journeys into, the interior of Western-tropical Africa, and formed extensive collections of living plants and animals. The majority of these have been sent to the Right Hon. the Earl of Derby; and the Royal Gardens of Kew have not failed to benefit by that distinguished nobleman's love and patronage of science."

The species is a shrubby evergreen of good appearance, and will no doubt prove a useful thing in collections where it is essential to keep up a good display of blossom during the duller months. The blossoms are not remarkably bright coloured, but they are plentifully produced in racemes which stand out well above the foliage; most of the flowers on a raceme, moreover, point one way.

As it admits of ready increase by cuttings taken off during the growing season, and placed in a damp heat to strike root, it will doubtless soon become plentiful. For those who have not space to keep large specimens, the best plan will be to renew them from cuttings every or every other year, and discard the old ones. Young plants thus formed early in summer, and favourably treated, will make neat dwarf flowering bushes against winter.

By pruning back rather closely in spring, reducing the ball of earth, and then planting in a smaller-sized pot, the old plants will break vigorously. Their strength must be supported afterwards with more pot-room, and liberal watering, to produce large-sized specimens. As the quantity of flower depends in a great measure on the number of branches, it will be proper to facilitate the protrusion of side-growths by shortening the earlier summer shoots. Those who possess a stove conservatory will find this a suitable shrub for planting in a border.

It may be grown in a loamy soil, mixed with about a third part of peat, or the same proportion of leaf mould and dung, accordingly as the aim is to form small or large plants.*

The "Mirror of the Months," tells us that with June,—Summer is come—come, but not to stay; at least, not at the commencement of this month; and how should it, unless we expect that the seasons will be kind enough to conform to the devices of man, and suffer themselves to be called by what name and at what period *he* pleases? He must die and leave them a legacy (instead of *they* him) before there will be any show of justice in this. Till then the beginning of June will continue to be the latter end of May, by rights; as it was according to the *old style*. And, among a thousand changes, in what one has the *old style* been improved upon by the new? Assuredly not in that of substituting the *utile* for the *dulce*, in any eyes but those of almanack-makers. Let all lovers of spring, therefore be fully persuaded that, for

* We are indebted to that delightful work 'Paston's Magazine of Botany' for our figure and description.

the first fortnight in June, they are living in May. We are to bear in mind that all shall thus be gaining instead of losing, by the impertinence of any breath, but that of heaven, attempting to force spring into summer, even in name alone."

It seems fitting thus to introduce the following passages, and invite the reader to proceed with the author, and take a bird's eye view of the season.

Spring may now be considered as employed in completing her toilet, and, for the first weeks of this month, putting on those last finishing touches which an accomplished beauty never trusts to any hand but her own. In the woods and groves also, she is still clothing some of her noblest and proudest attendants with their new annual attire. The oak until now has been nearly bare; and, of whatever age, has been looking old all the winter and spring, on account of its crumpled branches and wrinkled rind. Now, of whatever age, it looks young, in virtue of its new green, lighter than all the rest of the grove. Now, also, the stately walnut (standing singly or in pairs in the fore-court of ancient manor-houses, or in the home corner of the pretty park-like paddock at the back of some modern Italian villa, whose white dome it saw rise beneath it the other day, and mistakes for a mushroom,) puts forth its smooth leaves slowly, as "sage grave men" do their thoughts; and which over-caution reconciles one to the beating it receives in the autumn, as the best means of at once compassing its present fruit, and making it bear more; as its said prototypes in animated nature are obliged to have their brains cudgelled, before any good can be got from them.

These appearances appertain exclusively to the spring. Let us now (however reluctantly) take a final leave of that lovely season, and at once step forward into the glowing presence of summer—contenting ourselves, however, to touch the hem of her rich garments, and not attempting to look into her heart, till she lays that open to us herself next month: for whatever schoolboys' calendar-makers may say to the contrary, Midsummer never happens in England till July.

To saunter at mid June, beneath the shade of some old forest, situated in the neighbourhood of a great town, so that paths are worn through it, and you can make your way with ease in any direction, gives one the idea of being transferred, by some strange magic, from the surface of the earth to the bottom of the sea! (I say it gives one this idea; for I cannot answer for more, in matters of so arbitrary a nature as the association of ideas.) Over head, and round about, you hear the sighing, the whispering, or the roaring (as the wind pleases) of a thousand billows; and looking upwards, you see the light of heaven transmitted faintly, as if through a mass of green waters. Hither and thither, as you move along, strange forms flit swiftly about you, which may, for any thing you can see or hear to the contrary, be exclusive natives of the new world in which your fancy chooses to find itself: they may be *fishes*, if that pleases; for they are as mute as such, and glide through the liquid element as swiftly. Now and then, indeed, one of larger growth, and less lubricated movements, lumbers up from beside your path, and clattering noisily away to a little distance, may chance to scare for a moment your submarine reverie. Your palate too may perhaps here step in, and try to persuade you that the cause of interruption was not a fish but a pheasant. But in fact, if your fancy is one of those which are disposed to "listen to reason," it will not be able to lead you into spots of the above kind without your gun in your hand,—one report of which will put all fancies to flight in a moment, as well as every thing else that has wings. To return, therefore, to our walk,—what do all these strange objects look like, that stand silently about us in the dim twilight, some spring straight up, and tapering as they ascend, till they lose themselves in the green waters above—some shattered and splintered, leaning against each other for support, or lying heavily on the floor, as if they had lain dead there for ages, and become incorporate with it? what do all these seem, but wrecks and fragments of some mighty vessel, that has sunk down here from above, and lain weltering and wasting away, till these are all that is left of it! Even the floor itself on which we stand, and the vegetation it puts forth, are unlike those of any other portion of the earth's surface, and may well recall, by their strange appearance in the half light, the fancies that have come upon us when we have read or dreamt of those gifted beings, who like *Ladurlad* in *Kehama*, could walk on the floor of the sea, without waiting, as the visitors at watering-places are obliged to do, for the tide to go out.

Stepping forth into the open fields, what a bright pageant of summer beauty is spread out before us!—Everywhere about our feet flocks of wild flowers

"Do paint the meadow with delight."

The woods and groves, and the single forest trees that rise here and there from out the bounding hedge-rows, are now in full foliage; all, however, presenting a somewhat sombre, because monotonous, hue, wanting all the tender newness of the spring, and all the rich variety of the autumn. And this is the more observable, because the numerous plots of cultivated land, divided from each other by hedge-rows, and looking, at this distance, like beds in a garden divided by box, are nearly all still invested with the same green mantle; for the wheat, the oats, the barley, and even the early rye, though now in full flower, have not yet become tinged with their harvest hues. They are all alike green; and the only change that can be seen in their appearance is that caused by the different lights into which each is thrown, as the wind passes over them. The patches of purple or of white clover that intervene here and there, and are now in flower, offer striking exceptions to the above, and at the same time load the air with their sweetness. Nothing can be more rich and beautiful in its effect on a distant prospect at this season, than a great patch of purple clover lying apparently motionless on a sunny upland, encompassed by a whole sea of green corn, waving and shifting about at every breath that blows.



Glycyrrhiza glabra L.

GLYCYRRHIZA GLABRA.—THE LIQUORICE.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

Fig. (a) represents a flower magnified; (b) the vexillum; (c) alæ; (d) carina; (e) the nine united stamens; (f) germen and style; (g) the legume; (h) a seed.

THE common Liquorice is a native of the south of Europe; but has been cultivated in our gardens ever since the time of Turner in 1562. Stowe informs us that "the planting and growing of licorish began about the first year of Queen Elizabeth." It was formerly cultivated to a considerable extent at Pontefract, in Yorkshire, Worksop, in Nottinghamshire, and Godalming, in Surry; but the greater part of what is now used in England, is grown at Mitcham, Battersea, Fulham, and other places near London. It flourishes most in a light sandy soil, producing its flowers in August.

The root is perennial, running very deep into the ground, and creeping to a considerable distance. When full grown it is as thick as the thumb, round, slender, flexible, and furnished with a few scattered fibres; of a brownish colour externally, yellowish, succulent, and fibrous within. From the root proceed three or four erect, herbaceous stems, of a pale green colour, and striated; with few branches, to the height of four feet and upwards. The leaves are alternate, pinnated, and composed of five or six pairs of leaflets, with a terminal one standing on a longish footstalk; the leaflets are ovate, blunt, veined, petiolated, nearly two inches long, and of a yellowish green colour, and clammy on the under-side. The flowers are small, bluish or purplish, and papilionaceous, standing on naked pedicels, in long axillary spikes. The calyx is persistent, tubular, cut obliquely into two lips, and divided into narrow pointed segments. The corolla consists of an ovate, lanceolate, obtuse, erect, concave *vexillum*; two oblong, obtuse *alæ*, and a similarly shaped but shorter *carina*. The filaments are ten, nine of which are united at the base, and all of them furnished with simple roundish anthers; the germen is short, with a tapering style and blunt stigma. The legumes are oblong, smooth, compressed, pointed, and 1-celled, containing two or three small kidney-shaped seeds.

From Dr. Fleming's Catalogue of Indian plants, it appears that liquorice grows in the Bengal provinces; and Dr. Ainslie asserts it to be a product of the Malabar coast, where it is called *irattimadhiram*. The greater part, however, of what is sold in Lower India, is imported from Persia, where it grows in great abundance in the date groves near Bussora, and on the banks of the Sewund river. The roots of the wild Jamaica liquorice (*Abrus precatorius*, Lin.) a beautiful climbing shrub, resemble so much the true liquorice root in appearance and qualities, that they are often sold in India for it, and used as a substitute.

CULTURE.—The liquorice is propagated by cuttings of the small roots divided into sections, five or six inches long, each having one or more good buds. The proper season for procuring the sets for planting, is in open weather, about the middle of March. A light sandy soil is the best adapted for this kind of crop, as its goodness consists in the length of the roots. The ground should be trenched three spades deep; then having traced out rows a yard asunder, plant the sets along each row, at intervals of eighteen inches, covering them entirely with mould. The London gardeners usually sow a crop of onions or lettuce on the same ground the first year, between the rows. During spring and summer, all weeds must be kept down by the hoe, care being taken not to cut off the top shoots of the liquorice plants, as it would greatly injure them. In the autumn, when the stems of the liquorice are in a decaying state, they should be cut down, and a very little rotten dung spread upon the surface. In the following spring, about March, the ground should be slightly dug between the rows of liquorice, burying the remaining part of the dung, being very careful not to cut the roots. During the summer they must be kept quite clean by occasional hoeing. The same

operations must be annually performed, so as to keep the ground and plants in perfect order. In three years after planting, the roots of the liquorice will be fit to take up. The proper season for this is from November till February; for they should neither be taken up before the stalks are fully decayed, nor deferred till late in the spring, otherwise the roots will be apt to shrivel and diminish in weight. In taking them up, the small side roots are trimmed off, the best divided into lengths for fresh sets, and the main roots tied in bundles for sale. They are sold to the brewers and druggists; the price of the best roots varying from 40s. to 3l. per cwt. The *Glycyrrhiza echinata*, or prickly-podded liquorice, is sometimes cultivated, but its roots are less sweet and succulent than the officinal species.

QUALITIES.—Liquorice root is inodorous; it has a sweet mucilaginous taste, and is almost the only saccharine substance that does not produce thirst. It yields all its virtues to water, by coction; but alcohol extracts only the sweetness, with a small portion of mucilage. The medical properties of the root are supposed to depend on a distinct principle, to which has been appropriated the name *glycyrrhizine*. Professor Döbreiner prepares it by precipitating the infusion of liquorice by the proto-muriate of copper, washing the precipitate with water, and then boiling it in alcohol, which dissolves the glycyrrhizine, and affords it again on evaporation. It is soluble in water, and precipitated from its solution by the acids. Its taste is sweet; it is brittle, semi-transparent, and has a resinous appearance.

The *extract* is directed to be prepared by macerating for twenty-four hours, one pound of liquorice-root sliced, in a gallon of boiling water; then boiling down to four pints, straining the hot liquor, and evaporating it to a proper consistence. A purer extract may be made by a repetition of the process of solution and evaporation; and is kept in the shops under the name of "refined liquorice." The extract is, however, usually prepared on a large scale abroad, and is imported into this country, in an impure state, particularly from Spain. The powder of liquorice usually sold, is often mixed with flour, and probably too often with substances not quite so wholesome; the best sort is of a brownish yellow colour, (the fine pale yellow being generally sophisticated,) and of a very rich sweet taste, much more agreeable than that of the fresh root.

MEDICAL PROPERTIES AND USES.—Unlike other sweets, liquorice has had the reputation from time immemorial of allaying thirst, which property is attributed, by Cullen, to an acrid and bitter matter, which follows the extraction of the sweetness by chewing. In consequence of this virtue, it was designated by the name *'αλκυσ*, and according to Galen, it alleviates the desire for drink in dropsical cases. With us it is principally used as a pleasant demulcent, and in the form of a decoction; or, combined with other mucilaginous substances, is frequently prescribed for severe colds, and for those other affections of the air passages requiring lubrication. It is also useful to obtund the acrimony of vitiated secretions in the stomach and bowels; or, as a substitute for the natural mucus of the stomach, when deficient in quantity. From its bulk it is seldom given in substance, but a tea-cupful of a decoction of the root may be frequently drank. Under the form of extract it is in common use as a demulcent, in coughs and hoarsenesses; and is sometimes taken to relieve acidity of the stomach. It is also employed to cover the unpleasant taste of several bitter and nauseous drugs, particularly aloes and Peruvian bark.

OFF. PREP.—Decoctum Sarsaparillæ comp. *L. D.*

Infusum Lini. *L.*

Pil. Hydragryi. *L. D.*

Confectio Sennæ. *L. E.*

Paper has recently been fabricated in France from the liquorice root, or the root of the *glycyrrhiza germanica*. It is said that this paper is very white, and does not require any size in its preparation, while it can be manufactured at a price much lower than that made from rags.



Acacia cultriformis.

ACACIA CULTRIFORMIS.—COULTER-SHAPED-LEAVED ACACIA.

CLASS XXIII. POLYGAMIA.—ORDER I. MONŒCIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

GENERIC CHARACTER.—*Calyx* four or five-toothed. *Petals* four or five, sometimes free, and sometimes joined together into a four or five-cleft corolla. *Stamens* variable in number, from 10 to 200 in each flower. *Legume* continuous, dry, two-valved.—*Don's Gard. and Botany.*

SPECIFIC CHARACTER.—*Branches* smooth, angular; *phyllodia* cultriform, ending in an acute hooked mucrone, which leans to one side, and furnished with a gland on the middle of the upper margin, one-nerved, the nerve nearly parallel with the lower margin; *heads* crowded: disposed in racemes.

Acacia is a very extensive genus, including upwards of 320 known species, most of which are handsome trees or shrubs. Some of them are physiologically interesting, not only for the conversion of their stipules into spinacles, but, as in the New Holland *Acaciæ*, for the abortion of the true leaves, and the expansion of the petioles into leaf-like organs, called *Phyllodia*, the normal compound foliage being present only in the seedling plants. The *phyllodia* in *A. ornithophora* are curious in their shape, having a strong resemblance in their outline to the figure of a bird; and hence the specific name. *A. pilosa* is remarkable for having stipules as well as thornlets, the spinacles in general being the metamorphosed stipules: and *A. cornigera*, for its thorny stipules being extremely large, and so very similar to the horns of an ox, that the plant in common parlance has received a fearful name.

The bushy *Acaciæ* form excellent hedges, and in their wild state impenetrable thickets, such for example as *A. detinens*, which so often arrests the traveller by its thorns, and *A. latronum*, the groves of which are not only secure retreats to the smaller animals, but become as it were cities of refuge to rogues and runaways, for pursuit is vain where it spreads its protecting arms; and hence indeed it has been specifically called the "Rogue's *Acacia*."

Other *Acaciæ*, on the contrary, are of economical importance, such especially as the gum-bearing species, and those which abound in astringent principles fit for tanning.

Erythrophleum Guineense is the *Gregree* or Ordeal-tree of Sierra Leone and Guinea. The generic name refers to the red juice with which the stem and branches abound. This tree, like our trial by battle, is appealed to by the ignorant natives to declare God's judgment, and the effects which follow the ordeal are considered as proofs of the guilt or innocence of accused persons.

The juice, or a decoction of the wood is given to the accused to drink, and if vomiting occurs without being followed by death, the parties are declared innocent; but if they die, they are condemned as guilty.

The irritability of the stomach or the will of the judge, in reality is thus the gauge of guilt! for, if the fault be slight, or the judge inclined to favour the prisoner, a portion of the bark is given him to chew, which is invariably rejected by the stomach, and the accused escapes! but if the charge be grave, or the judge unfavourable, the decoction of the wood is given, and then the accused has little chance.

The savages of America have consecrated the *acacia* to the genius of chaste love; their bows are made from the incorruptible wood of this tree, their arrows are armed with one of its thorns. These fierce children of the desert, whom nothing can subdue, conceive a sentiment full of delicacy; perhaps what they are unable to express by words, but they understand the sentiment by the expression of a branch of blooming *acacia*. The young savage understands this seducing language, and receives blushing the homage of him who has won her heart by respect and by love.

It is not more than a century since the forests of Canada yielded us this beautiful tree. The botanist Robin, who first brought it us, gave it his name. The *acacia*, when spreading its light shade in our groves, with its scented flowers, and sweet and fresh verdure, seems to prolong the spring. The nightingale loves to confide its nest to this new inhabitant of our climate; the lovely bird, assured by the long and strong thorns which protect its family, sometimes descends upon the lowest branches of the tree, to make its ravishing notes the better heard.

The *acacia* has been made the emblem of domestic beauty by an anonymous writer, who thus speaks of it:—"Tints of the white, the golden, and the red rose are beautifully intermingled with the rich blossoms of the *acacia*. It is found in the most retired places, and it blooms the fairest in the closeness of its own foliage. It loves the mossy rock and the solitary grove, and pines away in the garden and crowded parterre. Nourmahal sings:—

Our rocks are rough, but smiling there
The *acacia* waves her yellow hair,
Lonely and sweet, nor loved the less

For flowering in a wilderness—
Then come—thy Arab maid will be
The loved and lone *acacia* tree.

In the earlier months of the year there are few plants more engaging, or more useful in the decoration of the greenhouse, than the different species of *Acacia*, laden with an almost over-abounding number of their unassuming and modest-looking globular heads of golden flowers. The light, airy, and elegant appearance of the slender branches and small phyllodia, form, even when not enlivened with bloom, an agreeable variation placed in the greenhouse amongst shrubs of stouter growth, and leaves of more ample dimensions. Kept in a dwarf state by repeated pruning and shortening back the young shoots, *A. cultriformis* forms an excellent plant to place in the drawing-room during the flowering season; or it may be planted in the border of a conservatory with great propriety, and if allowed to grow in its natural way, will speedily form a large tree. Even in a pot it will attain the height of fifteen or twenty feet in a few years, if not kept down by pruning.

Acacias will succeed tolerably well in almost any good garden mould, but that which appears most suitable to them, is composed of about two-thirds sandy loam, and the remainder a fibrous open peat earth. They require a liberal supply of water during the time they are flowering, and whilst forming their young shoots. They may be propagated by cuttings inserted in sand, and treated in the usual way.

"We seldom see a parterre of flowers, on a fine summer's day, in which the butterfly and the bee are not present,

"Feeding upon their pleasures bounteously."

The murmur of bees is a grateful sound—it tells of sunshine and sweet odours; it is one of those gentler tones of nature's voice which have a kind and soothing influence on the spirits; like the whisper of a gentle air among the leaves; the sigh of the long grass, as it bends before the breeze; or the murmur of a neighbouring rannel. It could not then be overlooked by the Poet:—

"Him to soft slumbers call
The babbling brooks, the fall
Of silver fountains, and the unstudied hymns
Of cageless birds, whose throats
Pour forth the sweetest notes;
Shrill through the crystal air the music swims;
To which the humming bee

Keeps ceaseless company,
Flying solicitous from flower to flower,
Tasting each sweet that dwells
Within their scented bells;
Whilst the wind sways the forest, bower to bower,
That evermore, in drowsy murmurs deep,
Sings in the air, and aids descending sleep."

WIFFEN'S GARCILASSO.

"From sapling trees, with lucid foliage crown'd,
Gay lights and shadows twinkled on the ground:
Up the tall stems luxuriant creepers run,
To hang their silver blossoms in the sun;

Deep velvet verdure clad the turf beneath,
Where trodden flowers their richest odours breathe;
O'er all the bees with murmuring music flew
From bell to bell, to sip the honied dew."

MONTGOMERY.

The climate of this country is not, perhaps, the most favourable for the production of flowers; yet we have a power of enjoying those we have, which inhabitants of warmer climates often have not. In the East, it is true, the country is adorned with the most magnificent flowers, springing up spontaneously and abundantly; whole fields are brilliant with tulips, anemonies, and roses; but the bright sun, which gives them life and beauty, forbids man to walk abroad during many hours in the day, from its insufferable heat. Persia is, perhaps, supereminently the country of flowers, of the rose in particular. Japan, too, has magnificent flowers; which, to be able to enjoy, the people have a quantity of them within doors. The Japanese are passionately fond of flowers, and frequently name their women from them. In Constantinople they are very much neglected. Tournefort remarks, that the Turks take little care of their gardens in general, bestowing their attention almost entirely upon their melons and cucumbers.

In Tripoli, on the celebration of a wedding, the baskets of sweetmeats, &c. sent as wedding presents, are covered with flowers; and although it is well known that they frequently communicate the plague, the inhabitants will even prefer running the risk, when that dreadful disease is abroad, rather than lose the enjoyment they have in their love of flowers. When a woman in Tripoli dies, a large bouquet of fresh flowers, if they can be procured, if not, of artificial, is fastened at the head of her coffin. Upon the death of a Moorish lady of quality, every place is filled with fresh flowers and burning perfumes: at the head of the body is placed a large bouquet, of part artificial, and part natural, and richly ornamented with silver: and additions are continually made to it. The author who describes these customs also mentions a lady of high rank, who regularly attended the tomb of her daughter, who had been three years dead: she always kept it in repair, and, with the exception of the great mosque, it was one of the grandest in Tripoli. From the time of the young lady's death, the tomb had always been supplied with the most expensive flowers, placed in beautiful vases; and, in addition to these, a great quantity of fresh Arabian Jessamines, threaded on thin slips of the Palm-leaf, were hung in festoons and tassels about this revered sepulchre. The mausoleum of the royal family, which is called the *Turbar*, is of the purest white marble, and is filled with an immense quantity of fresh flowers; most of the tombs being dressed with festoons of Arabian Jessamine and large bunches of variegated flowers, consisting of Orange, Myrtle, Red and White Roses, &c. They afford a perfume which those who are not habituated to such choice flowers can scarcely conceive. The tombs are mostly of white, a few inlaid with coloured marble. A manuscript Bible, which was presented by a Jew to the Synagogue, was adorned with flowers; and silver vases filled with flowers, were placed upon the ark which contained the sacred M.S.*



Dolichos pruriens.

DOLICHOS PRURIENS.—COW-HAGE DOLICHOS.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

FIG. (a) represents the carina; (b) anthers; (c) pistil; (d) seed.

THE Cow-hage or Cow-itch, *Dolichos*, the hairy pods of which have been long celebrated as an anthelmintic, grows spontaneously in the mountainous woods of Martinique, on the banks of rivers; also in the East Indies, where it flowers in the cool months, from September to March. It appears to have been cultivated in England in the time of Ray, and now is not an uncommon inhabitant of our stoves; but the plant seldom blossoms in this country.

The root is perennial and fibrous. The stem is herbaceous, climbing, cylindrical, tomentose, divided into many branches, which twist round the neighbouring trees, and rise to a considerable height. The leaves are ternate, upon footstalks, from six to fourteen inches long, placed alternately at the distance of a foot from each other; the central leaflet is rhomboidal, the two lateral ones oblique, and all of them entire, pointed, from three to five inches long, waved on the edges, smooth on the upper surface, and hairy beneath. The flowers are papilionaceous, large, inodorous, of a reddish, or rich violet colour, and placed mostly in ternaries, upon short pedicels, in pendulous, solitary spikes, about a foot in length, which hang from the axillæ of the leaves, and make a magnificent appearance. The proper flower stalks are about half an inch long, furrowed, hairy, and furnished with small stipulæ. The calyx is bell-shaped, gibbous at the base, downy, divided into two lips, of which the upper is smaller, semiovate; the under separates into three lanceolate segments. The corolla consists of a vexillum, or standard, which is roundish, entire, concave, obtuse, and double the length of the calyx; a carina, which is scythe-shaped, of the length of the alæ, compressed, and at the apex furnished on each side with a short spur. The filaments are ten, nine of which are united at the base, the four alternate ones being longer, and supporting incumbent anthers; in the shorter filaments the latter are placed vertically. The germen is oblong, villous, and supports a slender style, about the length of the filaments, terminated by a small orbicular stigma. The fruit is a coriaceous pod, about four inches long, compressed, curved like the letter S, thickly set with bristly, short, reddish, prurient hairs; and containing four, five, or six oval seeds, of a brown colour.

MEDICAL PROPERTIES AND USES.—The pods of the *Dolichos pruriens* are brought from the West Indies. They are densely covered externally with short hairs, which penetrate the skin when touched, and cause a very troublesome itching. Advantage has been taken of this irritating quality to expel worms from the human intestines; for this purpose they have been long advantageously employed in the West Indies, especially for the removal of the round worm, *lumbricus teres*, L. One of the earliest accounts, published in this country, of the vermifuge powers of the hair of the pods of the cow-hage, is that by Mr. Kerr, in the Edinburgh Medical Commentaries. Sir Hans Sloane notices the diuretic qualities of the roots and pods of this plant, but takes no notice of its vermifuge effects. Dr. Patrick Brown, however, informs us, that in the Windward Islands, a syrup is made of the pods, which is a very effectual remedy against worms. But the most complete account, showing the efficacy of this medicine as an anthelmintic, is that of Dr. Bancroft, in 1759, who resided many years in Guiana, a Dutch settlement in South America, where the inhabitants, particularly the slaves are much afflicted with intestinal worms. After stating the frequency of worms in that country, and endeavouring to account for it, he adds, that “from whatever cause these worms originate, their number is so great, and their power so prolific, that the usual remedies are insufficient for their destruction; for which reason the planters in general have recourse to cow-hage for that purpose. The part used is the setaceous hairy substance, growing on the outside of the pod, which is scraped off, and mixed with the common syrup, or molasses, to the consistence of a thin electuary, of which a tea-spoonful

to a child two or three years old, and double the quantity to an adult, is given in the morning fasting, and repeated the two succeeding mornings; after which, a dose of rhubarb is usually prescribed. This is the empirical practice of the planters, who usually, once in three or four months, exhibit the cow-hage in this manner to their slaves in general, but especially to all the children, without distinction; and in this manner I have seen it given to hundreds, from one year and upwards, with the most happy success. But though these were indisputable proofs of its efficacy, I was far from being convinced of its safety. I observed, that the substance given consisted of an assemblage of spiculæ, exquisitely fine, and so acutely pointed, that when applied to the skin they excited an intolerable itching, and even inflammation; from whence I apprehended dangerous consequences from their contact with the coats of the stomach and intestines. Indeed, when mixed into an electuary, in the manner in which they are given, their elasticity is so impaired, that they do not produce the same sensible irritation; but yet I could conceive no other quality on which their efficacy depended, especially after I had prepared both a tincture and decoction from cow-hage; and yet can, with the greatest truth, declare, that, though prejudiced to its disadvantage, I was never able, either by my own observations, or diligent inquiry, to discover a single instance of any ill consequence resulting from its use, which has been so extensive, that several thousands must have taken it; and as no ill effects have been observed, I think, not only its efficacy, but safety, are sufficiently evinced to entitle it to general use, especially when we reflect on the uncertainty, and even danger, which attends on vermifuges.* Whether this remedy is equally deleterious to the *ascarides*, he says, he cannot speak, as he has not seen it tried against them. For this last purpose, Dr. Mason Good suggests its employment in the form of mucilaginous injections. It was a favourite remedy with Dr. Macbride, who, in his introduction to the "Theory and Practice of Physic," has strongly recommended it. It is a fact well-known to entomologists, that the hairs of the caterpillars of several moths occasion a most violent itching, particularly those of the procession moth (*Lasiocampa processionea*), of which Reaumer has given so interesting an account. Hence it has been supposed, that the hair of the caterpillars here alluded to, might probably be found equally efficacious as an anthelmintic.† A decoction of the pods of this plant is said to be powerfully diuretic, and a vinous infusion is occasionally administered in dropsy. A strong tea, made with the roots, and sweetened with honey, has been recommended by the native doctors of India as a remedy for cholera.‡

By the "Mirror of the Months," the appearance of natural scenery in July is brought before us. "The corn-fields are all redundant with waving gold—gold of all hues—from the light yellow of the oats, (those which still remain uncut,) to the deep sunburnt glow of the red wheat. But the wide rich sweeps of these fields are now broken in upon, here and there, by patches of the parched and withered looking bean crops; by occasional bits of newly ploughed land, where the rye lately stood; by the now darkening turnips—dark, except where they are being fed off by sheep flocks? and lastly by the still bright-green meadows, now studded everywhere with grazing cattle, the second crops of grass being already gathered in.

"The woods, as well as the single timber trees that occasionally start up with such fine effect from out of the hedge-rows, or in the midst of meadows and corn-fields, we shall now find sprinkled with what at first looks gleams of scattered sunshine lying among the leaves, but what, on examination, we shall find to be the new foliage that has been put forth since midsummer, and which yet retains all the brilliant green of the spring. The effect of this new green, lying in sweeps and patches upon the old, though little observed in general, is one of the most beautiful and characteristic appearance of this season. In many cases, when the sight of it is caught near at hand, on the sides of thick plantations, the effect of it is perfectly deceptive, and you wonder for a moment how it is, that while the sun is shining so brightly *every where*, it should shine so much *more* brightly on those particular spots."

* *Essay on the Natural History of Guiana*, p. 390.

† Kirby and Spence's *Introduction to Entomology* •. 1. 5th ed. p. 180.

‡ Burnett's *Outlines of Botany*.

PLANTÆ UTILIORES;

OR

ILLUSTRATIONS OF USEFUL PLANTS,

EMPLOYED IN

THE ARTS AND MEDICINE.

BY M. A. BURNETT.

PART VI.

London:

WHITTAKER & Co., AVE MARIA LANE.

TO
THE RIGHT HONOURABLE
THE EARL STANHOPE,

PRESIDENT OF THE MEDICO-BOTANICAL SOCIETY,

F. R. S., &c. &c. &c.

MY LORD,

IT is with the deepest feelings of gratitude, that I lay the Third Volume of the "PLANTÆ UTILIORES" at your Lordship's feet.

I should not have ventured to intrude upon your leisure, with the request that you would accept so humble a work, did I not know that Genius is always lenient, and that the capability of making the highest efforts is ever accompanied by the most indulgent appreciation of the smallest ones.

I have the honour to remain,

MY LORD,

Your Lordship's

Most humble and devoted Servant,

M. A. BURNETT.

49, London Street, Fitzroy Square,
October 1st, 1847.

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Protea cynaroides.

PROTEA CYNAROIDES.—ARTICHOKE-LIKE FLOWERED PROTEA.

CLASS VI. TETRANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, PROTEACÆ.

CHARACTER OF THE GENUS, PROTEA. Involucrum imbricated, many-leaved, persistent, surrounding the receptacle, which is many-flowered, and beset with persistent shortened paleæ. Perigone divisible into two portions, unequal, the three segments of the broader lip cohering. Stamens four, inserted into the concave tops of the segments of the perigone. Scales four, hypogynous. Ovary one-celled, containing one ovule. Style subulate; stigma narrower, cylindrical. Nut one-seeded, clothed throughout with beard-like hairs, and terminated by the persistent style, resembling a tail.

DESCRIPTION OF THE SPECIES PROTEA CYNAROIDES. A low shrub, the stem being rarely two feet, erect, simple, wrinkled. Leaves alternate, petiolate, petioles roundish, wrinkled, devoid of hairs, about an inch in length, the lamina smooth, spreading, entire, roundish, or obscurely mucronate, shining. Flower a terminal capitula, very large, of an ovate form, the numerous scales of the involucre progressively becoming larger from the base to the summit, oblong, acute, all of them covered with a silky down, those near the base brownish, the upper ones of a delicate pink, deeper on the inner side especially at the margins. Receptacle flattish. Perigon with a long tube, separable at the top into two lips, unequal, entirely clothed with a white down. Stamens four, inserted into the concave tips of the perigone, filaments short, anthers linear, or tapering, yellow. Ovary oblong, hairy, style one, awl-shaped, stigma slender, projecting beyond the perigon, of a bright red colour. Nut hairy, crowned by the persistent style.

POPULAR AND GEOGRAPHICAL NOTICE. This most magnificent species, even of the superb genus *Protea*, is a native of the Cape of Good Hope, growing on the sides and summits of mountains. It is, indeed, a wonderful thing to see a flower of its size, nearly as large as a child's head borne on so diminutive a stem, for it is sometimes scarcely one foot in height. *Protea grandiflora* which comes nearest this in the size of the flower, has a tall branched stem. *Protea pulchra* and *Protea speciosa*, have likewise large heads of flowers, yet far inferior to the present subject, the dimensions of which cannot be estimated from the plate, as the figure is reduced to at least half the natural size. A question may be asked, what purpose does this extraordinary magnificence in the flower serve? It is at present impossible to answer as no direct use is made of any part of the numerous species of *Protea*, except for firewood; yet the flowers of *Protea melliflora* contain much sweet juice, which would be acceptable to the bees if they grew in the open air. Common as Proteaceous plants are in Australia, not one species of the genus *Protea* has been found there; indeed, they are strictly confined to the Cape of Good Hope, save one—*Protea abyssinica*, mentioned in Bruce's Travels, quarto edition, vol. V, appendix, p. 52, with a plate.

INTRODUCTION; WHERE GROWN; CULTURE. This plant was introduced into Britain, in 1792, by Messrs. Lee and Kennedy, Hammersmith nursery. It is a hardy greenhouse plant. "The best soil is light turfy loam, mixed with rather more than one third of fine sand; the pots must be well-drained with broken potsherds. Care must be taken not to let them droop for want of water, as the young roots are of a very fleshy substance, and soon suffer by too much drought, as well as by too much wet, so that they seldom recover, if suffered to flag too much. They also like to be placed where they may have a free circulation of air, as they cannot bear to be crowded, like some more rigid-growing plants. Ripened cuttings, taken off at a joint, and pared quite smooth, will strike root, if planted thinly in pots of sand placed under a hand-glass, but not plunged: the glasses must be often taken off, to give them air."*

Professor Burnett, in his introductory Lecture delivered in Chelsea Garden, says "Beings so curiously and wonderfully made as plants—being of such surpassing beauty and variety in their external forms, and demonstrative of such astounding skill in their internal mechanism, cannot but have some important functions to perform; and the investigation of them is the province of vegetable physiology. The functions of plants, I need scarcely say are most curious and important, not only with reference to their own well-being, but in an equal degree to both animals and men. Their influence upon the atmosphere and upon the soil are among the most extensive and important of their functions. The renovation of the air by plants, when rendered irrespirable by breathing or combustion, although at one time questioned, is a fact now indisputably established, and their influence on its humidity, and on the salubrity of the soil, is much greater than is usually conceived. That swampy aguish districts have been drained and rendered salubrious by the judicious planting of trees, and that the humidity and temperature of various countries, such especially as our

* The Botanist.

own, and other parts of Europe, have been varied, and even the quantity of rain that falls, been lessened by the felling of woods and clearing extensive tracts of forest land, are truths too well known to be more than just adverted to. The influence exerted by plants in the conversion of inorganic into organic matter, is likewise another most important function, and one exclusively their own, for it is a power that animals do not possess; while the metamorphoses they effect in refuse matter, changing every sort of filth and ordure which is supplied to them in the form of manure, into substances fit for food or raiment, are no less strange than they are common. We are astonished at the chemist, and extol his skill for converting, by an expensive process, linen into sugar, wood into a sort of flour, starch into gum, and so forth—and rightly do we give way to wonder; but conversions similar, though much more perfect and extensive, are being wrought by every plant, even by the humblest weed that grows. They are constantly engaged in the manufacture, if we may so express ourselves, of flour, sugar, oil, resin, flax, cotton, and all the other numerous vegetable substances which are so conducive to our comfort, nay, so essential to our existence, from earth, air, and water—presenting us not only with new organic matter, derived by their agency from the mineral kingdom, but also renovating that which, having been fed on or otherwise used and spoiled by men and animals, they cast, with loathing on the dunghill, and for the most part fail to recognise when returned to them as corn, and oil, as culinary vegetables, as delicious fruit, and as fragrant and beauteous flowers. The scientific culture of plants is founded on a knowledge of their structure and their functions, or it is a branch of vegetable physiology; and vast have been the improvements in both horticulture and agriculture since empirical practise has in some measure been superseded by scientific principles. The system of assolements, or the rotation of crops, by which the produce of our land has been quadrupled and the acclimation of plants with their hybridizations, by which the fruits and flowers of more southern regions are reconciled to our climate, are a few among the many examples which might be given of the benefits conferred by this science upon some of the most useful arts. The increase of food, and the fact of the more choice vegetables becoming cheap and common, cannot fail to be observed by every one. Each year our markets and shops are supplied more abundantly and with more choice vegetables. Sea kale, for example, which a few years since was rare and costly, is now cheap and common. Coleworts, cauliflowers, and the various kinds of brocoli, are not only improved, but have become more plentiful and cheap; while the potato, second only to corn in its importance, if not altogether as an esculent vegetable, the offspring of science, has been so much improved, varied, and multiplied by human skill and industry, and so much increased in value, as to be more indebted to its foster parents in Europe, than to the American savages by whom it was originally discovered. But here inexorable time cuts short the thread of our discourse.

If plants in a state of health are so essential to our existence, and conduce so much to our comfort and our pleasure, it would surely be ungrateful in us to neglect them when diseased. Vegetable pathology forms, then, another subordinate branch of our science; and although the maladies of plants have not hitherto been studied so much and so successfully as those of men and animals, still we know enough of them to be able to perceive that they suffer from the attacks of various diseases, some of which we are enabled to relieve, and others which are incurable in the present state of our knowledge. Plants, perhaps, suffer more from invagination and the attacks of insects than from any other means; yet they are subject to other diseases, both of sporadic and epidemic kind. Some of these even bear a similitude to animal disorders, and have therefore, received similar names, of which Willdenow furnishes a catalogue. Thus, plants are affected with atrophy, tabes or consumption, anasarca or dropsy, hæmorrhage, lepra, verrucæ, or warts, chlorosis, icterus, ulcerations, common gangrene, and necrosis, or dry gangrene, besides various kinds of deformities, wounds, mutilations, &c. &c. They are likewise subject, especially the cacti, to a peculiar kind of sudden death, called by the French "*la mort*," by which, when affected, a branch or even a whole plant is as rapidly destroyed as the use of a limb is lost, or death produced in animals by apoplexy.

The diseases of plants are often, although injurious to them, beneficial to man, while at other times their unhealthy conditions so far deprave and change the quality of their ordinary productions, as to render those which are usually wholesome and nutritious, either worthless, baneful, or even poisonous. The production of agallocum and the various kinds of galls and gums, are instances of vegetable disorders being serviceable to man, while the diseases of corn, such as the smut, canker, rust, &c., and especially the ergot, are familiar examples of the fearful havoc they make in our crops, the former rendering a harvest worthless, and the other converting our sustaining corn to poison. It must, however, be recollected that the ergot is when properly administered, a most valuable medicine, and also that these apparently grievous evils are such only on a partial view; they are injuries only when particular instances are selected and isolated, for it is on all hands confessed that in the general economy of nature they are highly beneficial, as forming a part of the system of checks and counterchecks by which the balance is corrected when the strong overpowers and would exterminate the weak, and preserve that quality which could not be otherwise maintained. To modify their influence, and protect ourselves from the injurious prevalence, is the duty of science, and the more the study of vegetable pathology is pursued, the greater will be the power we shall obtain of turning even these apparently malevolent incidents to our advantage."



Daphne Mezereum.

DAPHNE MEZEREUM.—COMMON MEZEREON, OR SPURGE-OLIVE.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, THYMELÆÆ.—THE MEZEREUM TRIBE.

FIG. (a) represents the calyx spread open, to show the insertion of the stamens; (b) section of the pistil, showing the solitary pendulous ovule; (c) fruit; (d) section of the fruit, to show the solitary seed; (e) section of the seed; (f) the embryo.

MEZEREON is a low shrub, which occurs wild in some parts of England, and produces its flowers in March. It is first mentioned as a native of our island, by Miller, who found it plentifully near Andover, in Hampshire. Since that it has been observed in several other places, as at Laxfield, in Suffolk; in Needwood Forest, Staffordshire; in the beech-woods in Buckinghamshire; at Eastham and Stanford, Worcestershire; near Appleton, Berks; and in Wich-wood Forest, Oxfordshire.

It has a strong root, which gives off a number of small slender fibres covered with a smooth olive-coloured bark. The stem is bushy, with nearly upright alternate branches, covered with a smooth grey bark, and seldom growing above four or five feet high. The leaves are deciduous, lanceolate, scattered, smooth, stalked about two inches long, and half an inch broad, appearing after the flowers, and accompanied by flower-buds for the next season. The flowers are disposed in clusters, about three together, on the naked branches, with several smooth, ovate bractæas underneath; they are of a pale rose colour, fragrant, sessile, monosepalous, tubular, with the lip divided into four deep ovate, spreading segments. The calyx, which constitutes what is usually denominated the flower, resembles a *corolla* in texture, and contains the stamens. The filaments are eight, alternately shorter, inserted into the tube, and supporting roundish oblong anthers. The germen is ovate, superior, bearing a flattish, entire stigma, on a very short style. The fruit is a pulpy scarlet berry, containing a single seed, and is the favourite food of some species of finch. The seed is pendulous, and exalbuminous. The embryo straight, with a superior radicle. The cotyledons plano-convex; and the plumula small. Of this species of Mezereon there is a variety with white flowers, and yellow or orange-coloured berries.

QUALITIES.—The bark of the root, which is the part used in medicine, is united to the ligneous fibre by a woolly substance, which is the inner part of the liber. The recent bark is very acrid, and, when chewed, powerfully excites the salivary glands, and creates burning sensations in the mouth, which last for a considerable time. M. Vauquelin has discovered a new vegetable principle in the *DAPHNE Alpina*, which he calls *Daphnine*; it is probably present in most of the other species.

POISONOUS EFFECTS.—Several species of *Daphne* are poisonous, and the berries of this plant prove so to man, dogs, wolves, and foxes. Linnæus reports, that a young lady labouring under intermittent fever, died from hæmoptysis, in consequence of having taken twelve berries of the *Daphne Mezereum*, and Vicat states, that an hydropic patient having taken the wood of Mezereon, was suddenly attacked with diarrhœa which was continued, and accompanied with insupportable pains. He had besides, for six weeks, vomitings which returned every day with extreme violence; although during the whole time, proper remedies were employed in order to quiet them.

M. Blatin also narrates the case of a person who took a decoction of the root of Mezereon, instead of marsh-mallow. It occasioned violent pains in the stomach and intestines, accompanied by strong burning sensations in the skin, restlessness, loss of appetite, intense fever, and irregular actions of the tendons. These symptoms were relieved by drinking copiously of a sweetened decoction of marsh-mallow.

MEDICAL PROPERTIES AND USES.—It is very generally allowed that Mezereon is a stimulating diaphoretic, useful in chronic rheumatism; but Dr. Donald Monro, Dr. Russel, Dr. Fothergill, and several other eminent men, have described it as capable of curing obstinate ulcers, and severe affections of the skin.

OFF. PREP.—Decoctum Sarsaparillæ Comp. *L.*

Decoctum Daphne Mezerei. *E.*

Mr. Burnett, in his Inaugural Address at the Medico-Botanical Society, observes:—

“As long as the human race have been subject to disease, as long as pain has been an evil, so long must means of alleviation have been sought, and so long must medicines have been prescribed and used. Rude, indeed, were the early essays of our art, and long must they have continued rude: the morning twilight of physic has been for ages dawning into perfect day; comparatively, it is not long since men, ignorant alike of the indications to be observed, and of the instruments by which those indications might be fulfilled, prescribed scarlet clothes for fever, because they both were red, and saffron for jaundice on account of its yellow hue.

Much lately has been done in the investigation of diseases, their causes, their symptoms, and their effects; pathological anatomy has revealed many of the changes which various structures undergo, some of which

morbid conditions impair the energies, and others are incompatible with the duration of life. But what avails it that the physician can trace by symptoms the successive stages of disorganization, as they proceed in structures concealed from view? what avails it that the surgeon can proclaim the appearance of such morbid alterations long before dissection unfolds them to the light? what avails it that both can foretell the impairment or destruction of vital parts, without they can at the same time learn to check the ravages of disease, and either to alleviate the sufferings of the patient or to afford him a perfect cure? Without such an application of this art, the means of obtaining it would to many be repulsive, and the science itself not a blessing, but a bane; as the foreknowledge of ills that could not be relieved would but aggravate the misery man is called on to endure. But such is not the opprobrium of our useful, and hence noble arts; for the theory of physic is founded on experience, and the benefits of its practice who can venture to deny! As sciences medicine and surgery find few their equals; and as arts they are excelled by none.

A circumstance which still shrouds medicine in mystery, must have been formerly much more perplexing than we find it now. Even, however, in the present day, it frequently involves the principles of our practice in obscurity; and hence some persons, ignorant of how many cases there are in which it approaches demonstration, have not scrupled to call physic a conjectural science; to define its object to be the calculation of chances, and its decision the balance of probabilities. I, of course, allude to the acknowledged difficulty of determining how far a cure should be attributed to the renovating powers of life, and how far to the remedial agents which art employs: for some diseases, and especially in some constitutions, will disappear not only without, but even in spite of the physician; whilst others, in other persons, or even in the same person at other times, not the most consummate skill can cure. Of this, the records of legitimate practice would afford us abundant illustrations; but the empirical artifices of the present day form still more familiar examples: to these I shall not particularly allude: some will *long* be notorious beacons.

From these sources of error, many useless, many nauseous, and not a few noxious, agents have, from time to time been introduced, several have enjoyed an ill-earned fame; while some really efficient medicines have as undeservedly fallen into disrepute. Hence, likewise can we account for many of those superstitious rites, anciently so mixed up with medicine as to have been esteemed an essential part thereof. Few persons will take the trouble of distinguishing the *post* from the *propter*; and, even to those who would, the power is oft-times wanting. A mind, patient in observation, and well disciplined to distinguish truth from error, does not commonly coexist with that instinct (shall I call it almost blind instinct,) for generalization, by which theories are planned, and systems raised. Allow an example to illustrate this abstract proposition.

Achilles, writes the poet, escaped unhurt though long exposed to all a warrior's danger, (and so did others of the Grecian force, and so do many others in every hostile meeting;) Achilles at last was slain by an arrow which transfixed his heel, (and so have many others fallen by wounds in some especial parts, whether in the head, the hand, the heel, for weapons to each victim are not omnipresent;) but Achilles had been bathed by Thetis, (and so by most parents have their sons been washed;) yet it is fabled that the heel by which his mother held him was the only part unwetted; that heel it is said was pierced: and hence arose the fame of the antivulneriferous waters of the Styx. "*Post ergo PROPTER balneum salus.*"

Again, in times of general sickness, the Romans, with solemnity elected a Dictator, for the especial purpose (and that alone) of driving a nail into the temple of Jupiter, and when afterwards the pestilence decreased, *post ergo propter malleum salus.*

Just as, at the present time, in countries where the plague prevails, an angel is believed to cast a drop of water on the earth, on the festival of St. John, after which day the plague is stayed, and to which the restoration of salubrity is attributed, rather than to the actual cause, viz. the great increase of heat that then ensues, and which is incompatible with its duration.

Again, honey was employed in ancient times, as still it is, as a useful application to relieve aphthous eruptions in the mouth and fauces; but then the relief obtained was attributed not immediately to the mean employed, but intermediately to an extraneous coincidence foreign to its nature, and only therewith fortuitously connected; i. e. the cure was ascribed by Soranus, who records a case in point, not to the honey, as honey, but to the accidental circumstance of *that* honey, which wrought the cure he mentions, having been procured from bees that had hived near Hippocrates' tomb.

Thus when men prescribed medicines, of the properties of which there was little known, for diseases, of the pathology of which they knew much less, it cannot be surprising that, although sometimes, *perchance*, they might assist recovery, more frequently they would do no good; and not uncommonly they would do much harm. Still, such was the perverseness of superstition, such the obtuseness of her votaries, that, whenever recovery ensued after the administration of any remedial means, were it either independant, or even in spite, of its effects, the cure was immediately attributed thereto; and when, as oftentimes occurred in cases of real disease, (although many slight or suppositious ailments would occasionally disappear during the exhibition,) it failed to cure or to relieve, some trifling variation in attendant circumstances, such as the mode or hour of administration or collection, or some other trifling irregularity, not only foreign but impertinent to the question, was referred to as the source of failure: and hence arose many of those superstitious rites which figure so strangely in the medical records of antiquity."



Epidendrum Schomburgkii.

EPIDENDRUM SCHOMBURGKII.—SCHOMBURGK'S EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDÆ.—THE ORCHIS TRIBE.

CHARACTER OF THE GENUS, EPIDENDRUM. PERIGON spreading, the outer divisions nearly equal, the inner ones equal to them, or narrower, seldom broader. LABELLUM with the claw connate with the column, either along its whole length or in part; the limb entire or divided; the disk usually callous, ribbed, or tuberculate, sometimes extending into a spur adhering to the ovary. COLUMN elongated; the receptacle of the anther bordered, usually fringed. ANTHER fleshy, two or four-celled. POLLEN MASSES four, with as many bent back caudicles.

DESCRIPTION OF THE SPECIES, EPIDENDRUM SCHOMBURGKII. EPIPHYTE growing to the height of two or three feet, without pseudo-bulbs. STEM leafy in its lower half, having in the upper part none but closely appressed sheathing squamæ. LEAVES sheathing at the base, distichous, spreading, oblong, blunt, thick and fleshy, spotted with dark pink in a wild state, according to Schomburgk, generally two or three inches long. FLOWERS in a terminal raceme, which from the closeness of the pedicels to each other, takes the form of a loose head. PEDICELS simple, one-flowered, each at the axil of a small bract. Ovary long, curved. Sepals and Petals all similar and equal, spreading, lanceolate, pointed, narrowed at the base, above half an inch, or nearly three-quarters in length, of a rich scarlet. Labellum borne on a claw which is connate with the column, into a club-shaped scarlet tube with a yellow orifice, rather shorter than the petals; the limbs broadly orbicular, more or less deeply divided into three broad obovate, cuneate lobes, irregularly fringed on the margin; at the base are two projecting calli, and between them a projecting longitudinal line.

POPULAR AND GEOGRAPHICAL NOTICE. The genus *Epidendrum* which, in the days of Linnæus and his immediate successors, was the common receptacle for nearly all tropical Orchidaceous Epiphytes known at that time, was first reduced to its natural limits by Brown, and, as adopted by Lindley, it remains at once a well-defined and a very numerous genus; probably the most numerous in America, to which hemisphere it is strictly confined. Every collection from the hotter parts of that country furnishes some new species, and the seventy-one enumerated by Lindley, in 1831, are, perhaps, now nearly doubled. The one here figured, one of the finest of the genus, chiefly from the richness of its colour, was discovered at the foot of the mountain Attarypon, near the Rupunoony, in British Guiana, by M. Schomburgk, who in a letter to Dr. Lindley, quoted in the *Botanical Register*, states that he found it growing, in company with *Coryanthes* on a tree on the banks of the river, exposed to full light. The description made in the same work, taken from dried specimens and from a drawing of M. Schomburgk's, and the anticipations as to its beauty, have been fully confirmed now that the plant has flowered in our stoves.*

AUTUMN, and particularly the *Evening of Autumn*, has been a chosen season for study and reflection with some of the most exalted spirits of which our country can boast. Milton we know to have been so partial to this period of the year, and so impressed with a conviction of its friendliness to poetic inspiration, as to leave it on record that he felt the promptings of his genius most effectual and satisfactory to himself about the *Autumnal Equinox*.

To Thomson, who partook of much of the sublimity, and possessed an ample share of the pensive enthusiasm of Milton, we are indebted for an express tribute to Autumn, as the season best suited to philosophic thought and poetic composition. He is describing the retired and contemplative man, who watches with discriminating admiration the phenomena of the revolving year, and who from all he sees and feels derives a source of the purest and most permanent enjoyment.

He, when young Spring protrudes the bursting gems,
Marks the first bud, and sucks the healthful gale
Into his freshened soul; her genial hours
He full enjoys; and not a beauty blows
And not an opening blossom breathes in vain.
In summer he, beneath the living shade,
Such as o'er frigid Temple wont to wave
Or Hemus cool, reads what the Muse, of these
Perhaps, has in immortal numbers sung:
Or what she dictates writes: and, oft an eye
Shot round, rejoices in the vigorous year.
When *Autumn's* yellow lustre gilds the world,
And tempts the sickled swain into the field,
Seiz'd by the general joy, his heart distends
With gentle throes, and through the tepid gleams
Deep-musing, then he best exerts his song.

There is in the grey and sober tinting of an *Evening in Autumn*, in the many-coloured hues of the trembling foliage, in the fitful sighing of the breeze, in the mournful call of the partridge, in the soft low piping of the red-breast, and above all, in the sweetly-plaintive warbling of the thrush, the blackbird, and the woodlark, a union of sight and sound which can scarcely fail to touch the breast with a corresponding sense of pensive pleasure. More especially is this felt to be the case, if, while we are contemplating such a scene, the setting-sun, hitherto shrouded in the gathering gloom, should gleam a farewell lustre on the fields; it is then, perhaps, that our emotions harmonize most completely with external nature; it is then that, in the touching language of a contemporary poet, and in the same exquisite spirit of tender enthusiasm, we must wish to take our leave of the departing luminary:—

Farewell, farewell! to others give
The light thou tak'st from me:
Farewell, farewell! bid others live
To joy, or misery.

Say, breathes there one who at this hour
Beholds thy glories shine,
And owns thy strangely-thrilling power,
With feelings such as mine?

For I have view'd thee as a friend,
And lov'd, at morn or eve,
Thy golden progress to attend,
Thy first, last look receive.

Thou witness of my lonely dreams,
Inspirer of my shell,
Like Memnon's, answering to thy beams,
Not yet—not yet farewell?

How soft, how tender a repose
O'er Nature sheds its balm,
Like sorrow, mellowing at the close,
To resignation calm!

While man's last murmur, hush'd to rest,
Steals gradual from the ear,
As the world's tumult from a breast
Where heav'n alone is dear.

O'er all my soul seems gently shed
A kindred soften'd light;
I think of hopes that long have fled,
And scarcely mourn their flight.

Once more farewell! Another day,
To all, or dark or glad,
Fleets with thy vanish'd orb away,
And am I pleas'd or sad?

I know not. All my soul to speak,
Vain words their aid deny;
But, oh, the smile is on my cheek,
The tear is in my eye!

It is this *tender melancholy*, an emotion originating from some of the finest feelings which do honor to the human heart, that has rendered the evening of the day and year so peculiarly a favourite with the lovers of nature and of nature's God. It is then we cease to commune with the world of man; we turn disgusted from its cares, its follies, and its crimes, to seek in solitude and contemplation, in the fields, and woods, and by the fall of waters, that peace and consolation, that wisdom, and that hope, without which our being here would be as the mockery of an idle dream, and our waking from it but one scene of inextinguishable regret. It is, in fact, through the vicissitude and decay of all around us, through the solemn and the dying aspect of this monitory season, that the voice of our Creator speaks in tones that cannot be misunderstood. They admonish us that we too are hastening to a temporary dissolution; that the spring and summer of our days have past, or are fleeting fast away; that the hour is come, or shall approach, when the blanched head, the enfeebled eye, and tottering step shall assimilate our state to that of the faded and the fallen leaf; when the pride and vigor of this earthly frame shall wither and be extinct, and the heart that throbb'd with joy or grief, with anger or with love, shall cease to beat for ever!—These are reflections which give birth to the noblest emotions that can animate the breast of man. We are dying mid a dying world, an idea which can scarcely be entertained without extinguishing in our minds every harsh and hurtful passion—without our feeling, indeed, for all that live around us, that holy sympathy, that kindling charity, from which the strifes and bickerings, the envy and the hatred, of a selfish world, must sink appalled away. They are reflections too, which, while they incline us to humility and philanthropy, to that kindness and commiseration which a mutual and a general fate have awakened in our bosoms, lead us, at the same time, and by the most delightful of channels, a love for all that lives, to put our trust in Him with whom “there is no variableness nor shadow of turning.”*

* Dr. Drake's *Evenings in Autumn*.



Salix Russelliana.

SALIX RUSSELLIANA.—BEDFORD WILLOW.

CLASS XXII. DICECIA.—ORDER II. DIANDRIA.

NATURAL ORDER, SALICINÆ.—THE WILLOW TRIBE.

THIS species of Willow is a native of wet meadows, osier-holts, and hedges, throughout the midland and southern counties of England; flowering in April or May. It was long confounded with the *S. fragilis*, and was first made known for its valuable economical properties under the name of the Leicestershire, or Dishley Willow. The late Duke of Bedford brought it much into notice for its tall, handsome, rapid growth; and the bark was also found by Mr. Biggin, an able practical chemist, to contain more of the tannin principle than any other tree, except the oak. "Hence," says Sir James Smith, "this bark, taken for *S. fragilis*, has been found useful as a substitute for *Cinchona*, in agues; and if it has occasionally disappointed some medical practitioners, they probably chanced, in such cases, to give the real *fragilis*." Tanners have sometimes been, in like manner, deceived, and they will find it worth their while to observe the character of the tree, in future, before they purchase its bark. On the other hand, when the tree in question was first recommended for cultivation, by the name of the Leicestershire, or Dishley Willow, it was regarded with scorn, as "only the Crack Willow," a sort notoriously useless. This ignorance and prejudice are now removed, and *S. Russelliana* is found the most profitable for cultivation of any species of the genus, (of which sixty-four are indigenous to Britain,) for the value of its timber as well as bark, the rapidity of its growth, and the handsome aspect of the tree. A famous willow, planted by Dr. Johnson, at Lichfield, is the *Russelliana*; as I am assured by the Rev. Mr. Dickenson, who has mentioned it in his edition of Shaw's History of Staffordshire, p. 113, by the name of *fragilis*.

The Bedford Willow is a tall tree, more handsome than the *Salix fragilis*. The branches are long, straight, and slender, very tough, round, flexible, and covered with a very polished bark. The leaves are lanceolate, very smooth, tapering at the base, not rounded, says the learned author of the "English Flora," nor do they at any period approach to the broad, ovate form of the crack willow, with a stouter midrib; they are strongly, and rather coarsely, serrated throughout. The footstalks are smooth, channelled, glandular, either along their edges, or about their summit, where they occasionally bear two or more lanceolate leaflets. The stipulas are half-ovate, toothed, or cut, and sometimes are altogether wanting. The female catkins are longer and more tapering than *fragilis*, and their common receptacle less downy. The calyx is oblong, either hairy or having a deciduous scale. The germen is lanceolate, tapering, smooth, on a smooth stalk; at whose base, on the inside, is a large, abrupt, solitary nectary. The style is equal in length to the deeply divided stigma. The germen protrudes beyond the scale, nearly half its own length.

DISTINCTIVE CHARACTERS.—The whole hue of *Salix Russelliana* is lighter and brighter than that of *fragilis* especially the leaves, which are more firm, narrower, tapering at the base; their serratures more coarse and irregular, and the midrib considerably stouter. The glands on the footstalk sometimes become leaflets. The germen is longer and more tapering, with a longer stalk and style. In *fragilis*, the germen is ovate, and scarcely, if at all, longer than the scale. *Salix Errhartiana*, or the Hexandrous German Willow, bears a considerable affinity to the present species, but its leaves are much smaller, more elliptic-lanceolate, with finer, closer serratures, and the scales of the catkins shorter and rounder. This valuable species may be distinguished even in winter, from the *fragilis*, when stripped of its leaves, "by its much more handsome and straight mode of growth, instead of the branches decussating each other, or being set on obliquely, in the very unsightly manner of that tree."

QUALITIES AND CHEMICAL PROPERTIES.—The bark of this species of willow agrees in its sensible

properties with the others, excepting that it has been found to contain a much larger proportion of tannin. It is on this account that it has been strongly recommended by Sir J. Smith, as preferable for medicinal purposes; to which opinion we cordially subscribe. Neither this, nor the bark yielded by the *S. fragilis* and *S. caprea*, have undergone as far as we know, any elaborate chemical analysis.

MEDICAL PROPERTIES AND USES.—Although the bark of the *Salix Russelliana*, is, on the authority of Sir J. E. Smith, best adapted for medicinal purposes, it was that of the *S. alba* which was first used by the Rev. E. Stone, of Chipping-Norton, whose paper in Vol. LIII. of the Philosophical Transactions introduced it to notice; and from which we make the following extract:—"I have continued to use it in two scruple doses, repeated every four hours between the fits, as a remedy for agues and intermitting disorders, for five years successively and successfully. It hath been given, I believe, to fifty persons, and never failed in the cure, except in a few autumnal and quartan agues with which the patients had been long and severely afflicted: these it reduced in a great degree, but did not completely take them off: the patient, at the usual time for the return of his fits, felt some smattering of his distemper, which the incessant repetition of these powders could not conquer; it seemed as if their power could reach thus far and no farther; and I did suppose that it would not have long continued to reach so far, and that the distemper would have soon returned with its pristine violence; but I did not stay to see the issue. I added one fifth part of Peruvian bark to it, and with this small auxiliary it totally routed its adversary."

The willow has not only been noticed, but employed in basket-work in this country from a very early period, and there is some probability that the Britons taught the art to the Romans—at least, from the mention of a basket brought to Rome by painted Britons, in Martial, we should be led to infer that baskets of British manufacture were esteemed in the capital of the world.

The timber of the willow is applicable to many purposes similar to those in which the poplar is employed, and in toughness it is far superior. The ancient Britons sometimes made their boats of basket-work of willow, and covered them with the skins of animals: they were remarkably light and buoyant.

The willow is used extensively in the manufacture of charcoal; and it has been found to be superior to most other woods in producing charcoal for gunpowder. A good deal depends, however, upon the manufacture. In the ordinary modes of making charcoal, by building the wood up in a pyramidal form, covering the pile with clay or earth, and leaving a few air-holes, which are closed as soon as the mass is well lighted, combustion is imperfectly formed. For charcoal to be used in the manufacture of gunpowder, the wood should be ignited in iron cylinders, so that every portion of vinegar and tar which it produces should be suffered to escape. In India, charcoal is manufactured by a particular caste, who dwell entirely in the woods, and have neither intermarriage nor intercourse with the Hindoo inhabitants of the open country. They bring down their loads of charcoal to particular spots, whence it is carried away by the latter people, who deposit rice, clothing, and iron tools, a payment settled by custom. The benevolent Bishop Heber wished to mitigate the condition of these unfortunate people, but he found that he could not break through the Hindoo prejudice against them. Evelyn, in his *Sylva*, fears that the progress of our iron manufacture would lead to the destruction of all our timber, in the preparation of charcoal for furnaces. He did not foresee that we should find a substitute, by charring pit-coal into coke.

Good charcoal is also made from Dog-wood (*Cornus sanguinea*), which is, however, a tree, or rather a shrub, very different from the willow in its appearance and habits. The Dog-wood is firm and compact; grows naturally in hedges upon chalky soils, and bears berries that have a purple juice, out of which a red colouring matter of considerable brightness may be extracted. It is very common in Kent and Sussex; and as there are many powder mills there, coppices of it are reared for supplying them with charcoal.

Old Fuller calls the willow "a sad tree, whereof such who have lost their love make their *mourning garlands*." The twigs hereof are physick to drive out the folly of children. This tree delighteth in moist places, and is triumphant in the Isle of Ely, where the roots strengthen their banks, and top affords fuel for their fire. It groweth incredibly fast, it being a by-word in this county, that the profit by willows will buy the owner a horse before that by other trees will pay for his saddle.

In the language of Flowers, the Willow is the emblem of *melancholy*.



Lolium temulentum.

LOLIUM TEMULENTUM.—BEARDED DARNEL.

CLASS III. TRIANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, GRAMINEÆ.—THE GRASS TRIBE.

FIG. (a) spikelet; (b) under glume; (c) floret; (d) germen, and styles.

THIS is one of the rarer British grasses. It has been generally regarded as not unfrequent in many parts of England. Dr. Boué, of Geneva, in his Inaugural Thesis, published at Edinburgh in 1817, enumerates it amongst the scarce plants of Scotland. Sir William Hooker, in his *Flora Scotica*, informs us, that it is occasionally found in the neighbourhood of Glasgow. It is an annual, growing spontaneously in corn-fields among wheat, barley, and flax; and flowering in July.

The culm or stalk is rough in the upper part, erect, cylindrical, striated, three or four feet high, and clothed at the joints, which are from three to five in number, with linear pointed leaves, a foot or more in length, rough on the upper surface, but smooth below, and of a pale green colour. The sheaths are roughish, striated, and crowned with a short blunt ligula, slightly notched at the edge. The inflorescence is an erect spike, frequently a foot or more in length. The spikelets are erect, sessile, disposed in two rows, alternately along the rachis or common receptacle, each containing many flowers. The single valve of the glume is the length of the spikelet, awl-shaped, and without any awn; the terminal flower of each spikelet, and frequently the lower ones are furnished with a minute elliptical inner valve. The glumelle consists of two unequal valves; the outer only half the length of the glume; it is edged with white, and puts forth below the tip a straight awn, twice its own length. The filaments are three; capillary, shorter than the glumelle, and supporting oblong anthers, cloven at each end. The germen is turbinate; styles two, very short; stigmas feathery along the upper side. The seeds are solitary, elliptical, convex on one side, compressed, and attached to the inner valve of the glumelle. In some specimens the awns are very short, or altogether wanting. This is the only species of the extensive natural order, Gramina, that is known to possess deleterious qualities. Is generally met with in corn-fields, especially amongst wheat, where to a bad farmer it proves a troublesome and noxious weed.

"Being an annual plant, (remarks Mr. Sinclair, in his *Hortus Gramineus Wobernenis*,) it may be easily kept under, or totally extirpated, by the practice of the drill mode of husbandry."

QUALITIES.—The seeds are inodorous, and have a slight bitterish, disagreeable taste. They are said to redden the blue colour of vegetables.

POISONOUS EFFECTS AND MORBID APPEARANCES.—Haller states, that this species of *Lolium* possesses intoxicating effects, as its trivial name *temulentum* implies; and whether baked into bread, or fermented into ale, it is attended by very disagreeable, and even fatal effects. It produces headache, vertigo, lethargy, drunkenness, difficulty of speech; and the tongue exhibits a very strong trembling: while Seeger remarks, that a trembling of the body is one of the most certain signs of poisoning by this plant. It also affects with blindness for several hours, and is thus commemorated by Ovid in his *Fasti*:

"Et careant loliis oculos vitiantibus agri
Nec sterilis culto surgat avena solo."

And this property has given rise to the proverb, "He feeds on Darnel," which refers to a dim-sighted person: thus Plautus, in the scene referred to above, where Palæstro inquiring what Sceledrus meant by his living on darnel, receives this answer, *Quia lusciosos*, "because you are purblind." By the Chinese laws (for this plant is found in China and Japan,) it is forbidden to be used in fermented liquors. According to Withering, dogs are particularly affected by darnel; geese, and horses, are killed by it; but a small quantity mixed with their food, is said to fatten chickens and hogs.

The subjoined cases, communicated to the Editors of the Medical and Physical Journal, by Mr. Marsh, Surgeon to the 2nd Wiltshire Militia, fully illustrate the symptoms produced by the *Lolium temulentum* in England; and it will be perceived, that the bread, of which it was composed, excited the more violent effects when eaten hot: a fact previously noticed by Linnæus.

"In the month of September, a sack of leased wheat; with an equal quantity of tarling wheat, (*i. e.* the refuse seeds which pass the sieve, abounding very much with darnel (*lolium*), which by the generality of people, where the plant is much known, is called *cheal*, were ground and dressed together, and in the evening about ten o'clock bread was made of a part of it. Of this bread JAMES EDMONDS, about thirty-

three years of age, and Robert his son, aged thirteen, ate the next morning about three o'clock; at five (two hours after) James became sick and giddy, felt pain and tightness in the calves of his legs, was confined at home the whole day, but on the following day was so far recovered as to be able to resume his work. Robert ate, during the day, about a pound and a half of this bread, and at night, on his return from his work, he ate more of the same; he felt giddy, and had pain of the head during the whole of the first day, with great pain and tightness of the legs, especially of the calves of the legs, extending to the ancles, attended with redness, swelling, and itching of the skin. James, eleven years old—John, three—and Elizabeth, four—all partook of this bread the following morning about nine o'clock. They soon became giddy, were sick, their legs became painful, felt excessively tight, where swelled, inflamed and itched much, and continued in that state eight or nine days, when the symptoms gradually disappeared, producing in one of them only (James) a small collection of a gelatinous fluid in the inside of the foot. But with Robert, who ate with his father at three o'clock in the morning, and also in the evening, the pain and inflammation continued to increase till it terminated in gangrene; sphacelus succeeded, and he was under the necessity of suffering amputation of both legs. Very little general fever accompanied this till the latter stage of the disease, which, it is presumed, was the effect of absorption. The remedies made use of in this case (and that too without any sensible advantage,) were, in the beginning, evacuants; in the latter state, camphor and bark, with the use of spirituous fomentations and antiseptic cataplasms. It should however be remarked, that this poor family lived at seven or eight miles from medical assistance, and therefore they were not attended till two or three days after their attack.

"In several cases which have since occurred, as soon as the legs became painful, attended with inflammation and swelling, scarifications were made of considerable length and depth, which, with evacuants in the very first stage, and afterwards large doses of camphor, with nitre and opium, occasionally, have been attended with success."

In the second volume of the "*Histoire de la Société Royale de Médecine à Paris*, it is likewise stated that a farmer, his wife, and servant, ate bread made with darnel and wheat. The two latter were attacked with sickness, and refused to partake of more. The farmer continued to use it the three following days, and died after suffering the most severe colicky pains. But the affection of the calves of the legs, as noticed by Mr. Marsh is not spoken of.

During the blockade of Genoa, in 1800, some speculators in grain, mixed darnel with wheat, in their supplies. And a family of five individuals having eaten of flour bought in the public market, were all of them soon after seized with dimness of sight; confusion of ideas; prostration of strength; trembling; restlessness; depression of spirits; and cold rigors, especially in the extremities. These were most severe; and continued longest in the maid servant, who had eaten the largest quantity.

Dr. Cordier, in a paper addressed to M. Orfila, describes the effects produced upon himself by the ingestion of bread made of the farina of the seed of *Lolium temulentum*. It was taken in the quantity of six drachms, without other food, early in the morning; and had a peculiar slightly disagreeable taste. Distraction of thought; indistinct vision; torpor, accompanied with general uneasiness, debility, and drowsiness succeeded by sickness speedily came on. Tremor of the limbs; part of the bread rejected; great depression; speech difficult; slept for a few minutes; rejected the remainder of the bread with much colourless mucus; slept again at intervals, taking only a little soup, without appetite, till evening, when weakness and inappetence only remained. Next day, convalescent; but yet a sense of uneasiness accompanied by eructations of a peculiar taste, continuing on the following days, and still perceptible in bread containing some portion of darnel. Dr. Corder was prevented from ascertaining the state of the circulation, and respiration by the general disorder of the system. He concludes from it, that darnel should be ranked amongst the stupifying narcotic poisons; and that its action is especially exerted on the cerebral and nervous system. The position of many naturalists, respecting the similarity of properties possessed by plants of the same natural family, meets here with an exception.*

MEDICAL PROPERTIES AND USES.—It will hence appear that both ancient and modern writers fully agree as to the intoxicating qualities of darnel grass; and from its resemblance to barley, we fear that beer not unfrequently owes its powers to it; being credibly informed, by an eminent practical botanist, that two acres of ground in Battersea fields, were lately cultivated with it; and we know no other purpose to which it could be applied. As a medicine, it is not now employed: but was used internally by the ancients in cephalalgia, sciatica, gout, &c. and Aretæus administered it in pleurisy. According to Boerhaave, "it resists putrefaction, if applied externally; and from its cleansing quality, proves highly efficacious in disorders of the skin." Galen applied it to wounds mixed with vinegar; and Celsus recommended the meal of *Lolium* to be used in poultices. "Gravioribus vero doloribus urgentibus, cataplasma imponi quoque conveniet, vel ex lolio, vel ex hordeo, cui pinguis fici tertia pars sit adjecta."

* Vide Med. Repository, vol. xiii. p. 260.



Clitoria fulgens.

CLITORIA FULGENS.—BRIGHT-FLOWERED CLITORIA.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

GENERIC CHARACTER.—*Calyx* furnished with two large bracts at the base, five-cleft. *Vexillum* large. *Stamens* diadelphous, inserted along with the petals, above the base of the calyx. *Style* rather dilated at the apex. *Legume* linear, compressed, straight two-valved, acuminate by the base of the style, one-celled, many-seeded. *Seeds* usually separated by cellular substance, axillary, pedicellate.

Section—*Centrosema*. *Calyx* campanulate, cleft into five beyond the middle. *Vexillum* furnished with a spur behind. *Bracteoles* striated lengthwise. *Leaves* pinnately trifoliate, having one pair of leaves and an odd one.

SPECIFIC CHARACTER.—*Plant* a twining evergreen sub-shrub. *Stem* round, clothed with numerous short depressed hairs. *Leaflets* ovate, pilose, with a fringed margin. *Inflorescence* racemose, on a stalk six inches long. *Vexillum* scarcely expanding.

SYNONYME.—*Centrosema coccinea*.—*Hort*.

The most fascinating feature of all houses devoted to the display of flowers is, in our mind, those elegant plants usually called creepers. Gently supported by the aid of pillars or of trellises, and hanging loosely about them, or depending in graceful festoons from the roof, they lend an air of ease and finish that contributes not a little to enhance the beauty of the general aspect, by divesting it of stiffness and formality.

The present species is an elegant addition to the number of these plants, and was obtained by Messrs. Veitch and Sons, of Exeter, who exhibited a specimen at the Horticultural fête at the Chiswick Gardens as a species of *Centrosema*, one of the divisions of the genus *Clitoria*. It was discovered by their collector, Mr. William Lobb, growing on rocks,—over which the graceful slender branches spread in all the wild luxuriance of nature,—on the Organ Mountains of Brazil, in the autumn of 1840; and seeds were received from him, at the Exeter Nursery, in the spring of 1841. These were sown immediately, and produced plants which flowered for the first time, though rather scantily, autumn 1843. The abundance, however, in which the blossom buds have been developed during the spring, justify us in considering it most likely to prove a very free-blooming plant.

The long, slender, and slightly hairy stems are well adorned with handsome foliage, having a smooth and bright green upper surface, and the lower side of a paler hue, covered with numerous very short soft hairs. The slightly depressed position of the leaves has a pretty appearance, especially when the stems are trained spirally round a basket, as they then fall over each other in a neat and loosely tiled manner. From the axils of the leaves, the flowers are produced in a clustered head, supported on a stiff and wiry peduncle five or six inches long, elevating them sufficiently above the foliage to display, without interruption, the bright and glowing scarlet blossoms.

It has, hitherto, been cultivated in a house intermediate betwixt the stove and greenhouse, but it may probably be found to succeed pretty well in the ordinary temperature of the greenhouse. It thrives well in a mixture of peat, loam, and sand, and when removed from a small pot to a large one, its natural situation amongst rocks would point out the propriety of intermingling with this compost a few pieces of porous broken pot or charcoal, to keep the soil open, and facilitate drainage. And, although it will need a reasonable abundance of water during the season of growth, it will be proper to limit the supply in winter, as moisture is then liable to injure it, especially with a low temperature.

Seeds have not yet been produced in this country, but it strikes root with tolerable freedom, from cuttings.*

Many of our readers, though fond of gardens will learn perhaps, for the first time, that trees are cheaper things than flowers; and that at the expense of not many shillings, they may plant a little shrubbery, or make a rural skreen for their parlour or study windows, of woodbine, guelder-roses, bays, arbutus, ivy, virgin's bower, or even the poplar, horse-chesnut, birch, sycamore, and plane-tree of which the Greeks were so fond. A few roses also, planted in the earth, to flower about his walls or windows in monthly succession, are nothing in point of dearness to roses or other flowers purchased in pots. Some of the latter are nevertheless cheap and long-lived, and may be returned to the nursery-man at a small expense, to keep till they

* Paxton's Magazine of Botany.

flower again. But if the lover of nature has to choose between flowers or flowering shrubs and trees, the latter, in our opinion, are much preferable, inasmuch as while they include the former, they can give a more retired and verdant feeling to a place, and call to mind, even in their very nestling and closeness, something of the whispering and quiet amplitude of nature.

In the earlier ages of Europe, kings were crowned, councils were held, and justice dispensed beneath the shade of some noble trees. From the shadow of an oak was Christianity first proclaimed in these realms; in a more recent day of our dear and noble country, the willows of Pope and Johnson, the mulberry of Shakspeare, and that of Milton, have associated those great names with the love of trees and of planting. Many noble works of our illustrious countrymen it would be easy to mention, that have been written, and more than one of our most distinguished living authors, who delights to compose, amid the inspiring grace and freshness and purity of trees. John Evelyn spent a considerable portion of a valuable life in endeavouring to communicate his admiration of trees and forests; and, besides, immediately effecting a great national service, by turning the attention of government to the importance of planting, has left a fine monument of his taste and labour. Well might this venerable and enthusiastic apostle of woods exclaim: "Here then is the true Parnassus, Castalia and the Muses; and at every call in a grove of venerable oaks, methinks I hear the answer of a hundred old Druids, and the bards of our inspired ancestors. In a word, so charmed were poets with those natural shades, that they honoured temples with the names of groves, though they had not a tree about them. In walks and shades of trees poets have composed verses which have animated men to heroic and glorious actions. Here orators have made their panegyrics, historians their grave relations; and the profound philosophers have loved to pass their lives in repose and contemplation."

And what author, ancient or modern, has not expressed his sense of their beauty, by employing them as figures of whatever is rich, flourishing and pleasant? In spring when they are in the delicacy of their pride, in summer when they are shadowy and aromatic, in the last splendour of autumn, or when winter robs them of their foliage, but brings to light what summer has concealed, the under-work and tracery of their branches—in each and all, are trees and woods inspiring and delightful.

It is in this month, however, that woods may be pronounced most beautiful. Towards the end of it, what is called the *fading of the leaf*, but what might more fitly be termed the *kindling or tinting of the leaf*, presents a magnificent spectacle. Every species of tree, so beautifully varied in its general character—the silver-stemmed and pensile-branched birch, the tall smooth beech, the wide-spreading oak and chesnut, each develops its own florid hue of orange, red, brown, or yellow, which, mingling with the green or unchanged trees, or the darkness of the pine, presents a *tout ensemble* rich, glowing, and splendid. Yet fine as our woods at this season, far are they exceeded by the vast forests of America; the greater variety of trees, and the greater effect of climate, conspiring to render them in decay gorgeous and beautiful beyond description.

"The woods! oh solemn are the boundless woods
Of the great Western World in *their decline*."

Hemans.

And solemn too are our own. The dark and glossy acorns lie scattered in profusion on the ground, the richly coloured and veined horse-chestnuts glow in the midst of their rugged and spiny shells, which have burst open by their fall among the deep and well-defined circle of "broad palmy leaves," that seem to have been shed at once. The host of birds enjoy a plentiful feast of beech-nuts in the tree-tops; and the squirrels beneath them, ruddy as the fallen leaves amongst which they rustle, and full of life and archness, are a beautiful sight.

The great business of Nature, with respect to the vegetable creation, at this season, is *dissemination*. Plants, having gone through the successive stages of springing, flowering and seeding, have, at length, brought to maturity the rudiments of a future progeny, which are now to be committed to the fostering bosom of the earth. Seeds are scattered by the hand of Nature in various manners. The winds which at this time arise, disperse far and wide many seeds, which are curiously furnished with feathers, or wings, for this purpose. Hence, plants with such seeds are, of all others, the most universally to be met with; as dandelions, ragwort, thistles, &c. Other seeds, by means of hooks, lay hold of passing animals, and are thus carried to distant places; as the bur. Many are contained in berries, which are carried about by birds. The seeds of some trees, as the maple, sycamore, &c. exactly resemble the wings of dragon-flies, being placed in pairs. Thus carefully has Nature provided for the distribution and propagation of plants.

Trees generally lose their leaves in the following succession: walnut, mulberry, horse-chestnut, sycamore, lime, ash; then, after an interval, elm; then beech and oak; then apple and pear trees, sometimes not till the end of November; and lastly, pollard oaks and young beeches, which retain their withered leaves till pushed off by the new ones in spring.*

* Howitt's Book of the Seasons.



Arnica montana.

ARNICA MONTANA.—MOUNTAIN ARNICA, OR LEOPARD'S-BANE.

CLASS XIX. SYNGENESIA.—ORDER II. POLYG. SUPERFLUA.

NATURAL ORDER, COMPOSITÆ DISCOIDEÆ.

FIG. (a) represents a floret.

THIS is a hardy perennial, a native of the northern parts of the continent of Europe and Siberia, delighting in most shady situations, and flowering in June and July. It is also found on the Pyrenees, and was cultivated by Philip Miller in 1759.

The root is blackish, woody, abrupt at the lower end, and furnished with many long slender fibres. The stem, which rises about a foot in height in our gardens, but not more than six inches in alpine situations, is simple, obscurely angular, striated, rough, hairy, and terminated by two or three upright peduncles, each bearing one flower, of a deep yellow colour, tinged with brown. The radical leaves are ovate, entire, ciliated, and obtuse; the cauline ones stand in opposite pairs, and are lance-shaped. The involucre is cylindrical, and composed of fifteen or sixteen rough hairy lanceolate scales, of a dingy green colour, and purple at the points. The florets of the disc are very numerous, tubular, with a five-lobed margin: those of the radius about fourteen, ligulate, striated, three-toothed, and hairy at the base. The fruit is oblong, blackish, hairy, and crowned with a straw-coloured down.

QUALITIES AND CHEMICAL PROPERTIES.—The leaves of the dried plant have a pleasant aromatic odour, and excite sneezing, while their taste is somewhat aromatic, bitter, and pungent. The root is bitter and acrid; the flowers have a fetid smell and a penetrating bitter taste; and according to an analysis by M M. Chevalier and Lassaigne, the following constituents were obtained.

A resin, having the odour of the flowers.
A bitter nauseous matter, resembling *cytisine*.
Gallic acid.
Yellow colouring matter.
Albumen.
Gum.

Muriate of potass.
Phosphate of ditto.
Trace of sulphur.
Carbonate of lime.
A trace of silex.

MEDICAL PROPERTIES AND USES.—In over doses the *Arnica montana* exerts peculiar effects on the animal economy. It induces great anxiety, particularly in the region of the stomach, followed by pinching pains, nausea, a flow of saliva, and sometimes sickness. If it reach to the intestines, it induces colic pains. These effects generally pass off soon, without leaving any derangement of the system, provided the dose be not too large. If it be, the brain and spinal marrow are peculiarly affected, twitchings and involuntary motions of the extremities generally preceding the other effects on the nervous system.

Dr. Collin of Vienna, endeavoured in the year 1773 to recall this plant from disuse by the publication of numerous cases of putrid fever, intermittents, palsies, tremors, and amaurosis, from which it would appear to be a very powerful and successful remedy.

Dr. Crichton states, that in the worst stages of typhus, treated by Stoll in the hospital of Vienna, it succeeded wonderfully well when the pulse was exceedingly weak, small, and quick, and when petechiæ had appeared; and even when the patients seemed exhausted by a colliquative diarrhæa, this remedy generally produced the happiest effects.

Dr. Collin says that he has cured thirty-six quotidian, forty-six tertian, and fifty-eight quartan agues with the extract of arnica, a drachm of which was given in the course of the day. Its success in these cases is confirmed by the testimony of Professor Sebold of Prague.

In Jutland it is a popular remedy for ague, and Dr. Manger states that he has experienced the best effects from an infusion of about half an ounce of the flowers, drank two hours before the access of the paroxysm. It has also been given in tremors, palsy, and amaurosis, with different degrees of success; and as it evidently possesses some power over the nervous system, it is deserving of the attention of British practitioners, although it may not be quite so potent a medicament, as by some persons it has been esteemed.

The whole plant is generally used in infusion or decoction, in the proportion of an ounce of it to a pint and a half of water, which quantity may be given in doses of a cupful in the course of twenty four hours.

Of the flowers, two or three drachms are generally sufficient; although an ounce has been taken without injury in the course of the day. The extract made from the whole plant is preferred by Dr. Crichton, who gives a drachm in the same time.

In addition to the physical effects which we have already adverted to, it is stated to be capable of indicating the place where any injury has taken place, from an external cause, by augmenting the pain in the part, or renewing it if it have ceased to exist. The root seldom produces such disagreeable symptoms as the flowers, but as these are considered auspicious signs, they must not, we are told, be heeded unless violent. A little of the extract of gentian prevents its untoward effects on the stomach and co-operates in its beneficial results; which are generally accompanied by an increase, but not velocity of pulse.

"All physicians,
And penny almanacks, allow the opening
Of veins this month."

The pointing out proper days for bleeding, taking physic, and other odd matters, was an important part of the task formerly assumed by almanack compilers, as appears by the last quotation and that from Hall's Satires. Neither is the belief quite extinct even now, there being many well-meaning persons who would not willingly adopt a remedy for a disease, without previously consulting that mystical column in the Almanack devoted to "knees, legs, ancles, feet, toes," &c; it being considered lucky, or unlucky, I forget which, to take medicine on the day when the particular part of the body affected is under the influence of the Sign. To facilitate the researches of the curious into these matters, Almanacks were formerly decorated with the figure of a man, and the several portions of his frame marked by the Sign which especially concerns them. I cannot say I recollect this desirable illustration "in my time" but I believe it has not been altogether discontinued within the memory of many persons somewhat more experienced. Mr. Forby in his East Anglian Vocabulary, gives the following anecdote in point.

"About the close of the last century, a medical practitioner of great practice, in Suffolk, sent an opening medicine to a patient, and desired him to take it immediately. On the following day he called at his house, and inquired how it had operated. The patient (a substantial farmer) said he had not taken it; and, upon the doctor's remonstrating against this disobedience, the sick man gravely answered, that he had looked into his Almanack, and, seeing the sign lay in 'Bowels,' he thought *that*, and the physic together, would be too much for him."

Our old dramatists abound with allusions to this "pictured shape." Not to multiply quotations unnecessarily, I shall notice but two. In Fletcher's "Chances," Antario, having been wounded, says of the surgeon,

"When I go to bed,
He rolls me up in lints, with lables at 'em,
That I am just the Man i' the Almanack."

And the Epilogue to Lee's "Gloriana," 1676, describing the severity of the weather when that Tragedy was produced, has this passage,

"The ladies too, neglecting every grace,
Mob'd up in night-clothes came, with face to face;
The towre upon the forehead all turn'd back,
And stuck with pins, like the Man i' th' Almanack."

The days of astrological prediction seem, however, to be nearly gone by; and even the compilation of Francis Moore, Physician, which the Address put forth by the Stationers' Company in 1830, avers to have "been for nearly two centuries the most popular of all the Almanacks published in England," is rapidly declining, I fear, from that "high and palmy station." To hasten its downfall, the "Stationers," in the Address just quoted, speaking of this and Partridge's make the following admission, which I commend more for its candour than its prudence.

"*Note.* These two Almanacks are the only ones published by the Stationers' Company which contain astrological predictions. These are still given from a persuasion that they delude nobody, and because many thousand readers are amused by tracing the coincidences which often occur between the prediction furnished by the astrological rule and the actual event."

Superstition, however, has still her votaries; for a new Almanack has made its appearance within these few years, resting its claim to support solely upon the ground of its astrological merits; and, having made some lucky hits, has, I understand, a large sale. I forget its precise title, and never had courage to examine its contents, being scared by the raw-head and bloody-bones with other fearful objects, which the superbly colored hieroglyphic presents to view.

I wish some one, skilled in this kind of lore, would inform the world when and where the original Francis Moore, Physician, flourished. Many men of less eminence, have had their biographers; and why should not some kind soul attempt to rescue poor Francis from "the gaping gulf of blank oblivion," as poor Kirke White styles it.*



Jasminum officinale.

JASMINUM OFFICINALE.—THE JASMINE OR JESSAMINE.

CLASS II. DIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, JASMINEÆ.—THE JASMINE TRIBE.

ESSENTIAL CHARACTER.—*Calyx* divided or toothed, persistent. *Corolla* monopetalous, hypogynous, regular, hypocrateriform, with from 5 to 8 divisions, which lie laterally upon each other, being imbricated and twisted in æstivation. *Stamens* 2, arising from the corolla, enclosed within its tube. *Ovarium* destitute of a hypogynous disk, 2-celled, with 1-seeded cells, the ovules in which are erect; *style* 1; *stigma* 2-lobed. *Fruit* either a double berry or a capsule separable in two. *Seeds* either with no albumen, or very little; *embryo* straight; *radicle* inferior.—*Shrubs*, having usually twining stems. *Leaves* opposite, mostly compound, ternate or pinnate, with an odd one; sometimes simple, the petiole almost always having an articulation. *Flowers* opposite, in corymbs. *R. Br.*

The name of this plant is derived from the Greek, and signifies an agreeable odour. Nearly all the European languages have the same name for it. In *French*, it is *Jasmin*: in *Italian*, *Gelsomino*: *Spanish*, *Jasmin*: *Dutch* *Jasmy*n, &c. &c. In English it is sometimes familiarly called *Jessamy*, *Jessima*, and *Gesse*.

There is an elegance in the Jasmine which added to its fragrance renders it an object of universal admiration.

It grows naturally at Malabar, and in several parts of India, yet has been long inured to our climate, so as to thrive and flower extremely well, but never produces any fruit in England. It is easily propagated by laying down the branches, which will take root in one year, and may then be cut from the old plant, and planted where they are designed to remain: it may also be propagated by cuttings, which should be planted early in the autumn, and guarded against the effects of severe frosts.

When these plants are removed, they should be planted either against some wall, pale, or other fence, where the flexible branches may be supported. These plants should be permitted to grow rude in the summer otherwise there will be no flowers; but after the summer is past, the luxuriant shoots should be pruned off, and the others must be nailed to the support.

When first introduced into France by some Spanish navigators, about 1560, it was greatly admired for the lightness of its branches and the delicate lustre of its star-like flowers. It was deemed necessary to place a plant so elegant and apparently tender, in the hot-house. It was then tried in the orangery, where it grew marvellously well; and at length it was exposed in the open ground, where now it grows as freely as in its native soil, braving the most rigorous winters without requiring any care or attention.

The flexible branches of this odoriferous shrub may be trained according to our pleasure. It will climb our palisades, and weave itself around our trellised arches, and cover the dead wall with an evergreen tapestry, and run gaily along our terraces and our walks. It is also obedient to the scissors of the gardener, who forms it into bushy shrubs or grotesque figures; and, in every form, it lavishes upon us an abundant harvest of flowers, which perfume, refresh, and purify the air in our groves.

Then how serene! when in your favourite room,
Gales from your jessamines soothe the evening gloom.

CRABBE.

These charming flowers offer a rich cup to the gay and painted butterfly, which is never seen to greater advantage than when it is sipping the perfumed honey from the delicate petals of the white jasmine.

This beautiful plant grew in Hampton Court garden at the end of the seventeenth century; but, being lost there, was known only in Europe in the garden of the Grand Duke of Tuscany, at Pisa. From a jealous and selfish anxiety that he should continue to be the sole possessor of a plant so charming and so rare, he strictly charged his gardener not to give a single sprig, or even a flower, to any person. The gardener might have been faithful if he had not loved; but, being attached to a fair, though portionless damsel, he presented her with a bouquet on her birth-day, and to render it more acceptable, ornamented it with a sprig of jasmine. The young maiden, to preserve the freshness of this pretty stranger, placed it in the earth, where it remained green until the return of spring, when it budded forth and was covered with flowers. She had profited by her lover's lessons, and now cultivated her highly prized jasmine with care, for which she was amply repaid by its rapid growth. The poverty of the lovers had been a bar to their union; now, however, she amassed a little fortune by the sale of cuttings from the plant which love had given her, and bestowed it, with her hand, upon the gardener of her heart. The young girls of Tuscany, in remembrance of this adventure,

always deck themselves, on their wedding-day, with a nosegay of jasmine; and they have a proverb that "she who is worthy to wear a nosegay of jasmine is as good as a fortune to her husband."

The Hindoos, who use odoriferous flowers in their sacrifices, particularly value the Jasmine for this purpose, and the flower which they call Zambuk.

Sir J. E. Smith tells us that a pope, having dreamed that a great quantity of snow had fallen upon a particular spot during the month of August, upon discovering that his dream had actually been realised, built in commemoration the Borghese Chapel at Rome, and directed that on the anniversary of the day a representation of a snow-shower should be given to the congregation throughout the service. The mimic snow was made of the lovely and fragrant flowers of the white jessamine, and the anticipation of their powerful odour deterred the ladies of Rome from honouring the ceremony with their attendance.

Many persons in our own country are unable to bear the scent which delights others. Some will be affected with head-ache by the smell of the mignonette, the hawthorn, or the lilac. A wreath made of the flowers of the garden laburnum, placed around the head, would in many persons cause extreme pain. Plants which are delightful in the field or garden, as the lily, will in the house affect the nerves of delicate persons.

Jessamine is one of the shrubs of which Milton forms the bower of Adam and Eve in Paradise;

"Thus talking, hand in hand alone they pass'd
On to their blissful bower: it was a place
Chosen by the sovereign Planter, when he framed
All things to man's delightful use; the roof
Of thickest covert was inwoven shade,
Laurel and myrtle, and what higher grew
Of firm and fragrant leaf: on either side
Acanthus, and each odorous bushy shrub,

Fenced up the verdant wall; each beauteous flower,
Iris all hues, roses, and jessamine,
Rear'd high their flourish'd heads between, and wrought
Mosaic; underfoot the violet,
Crocus, and hyacinth, with rich inlay
Broider'd the ground, more colour'd than with stone
Of costliest emblem."

"The jessamine, with which the queen of flowers,
To charm her god, adorns his favourite bowers;
Which brides by the plain hand of Neatness drest,

Unenvied rival! wear upon their breast;
Sweet as the incense of the morn, and chaste
As the pure zone which circles Dian's waist."—CHURCHILL.

Jessamine abounds in Italian gardens. In the East it is cultivated for the stems of which pipes are made.

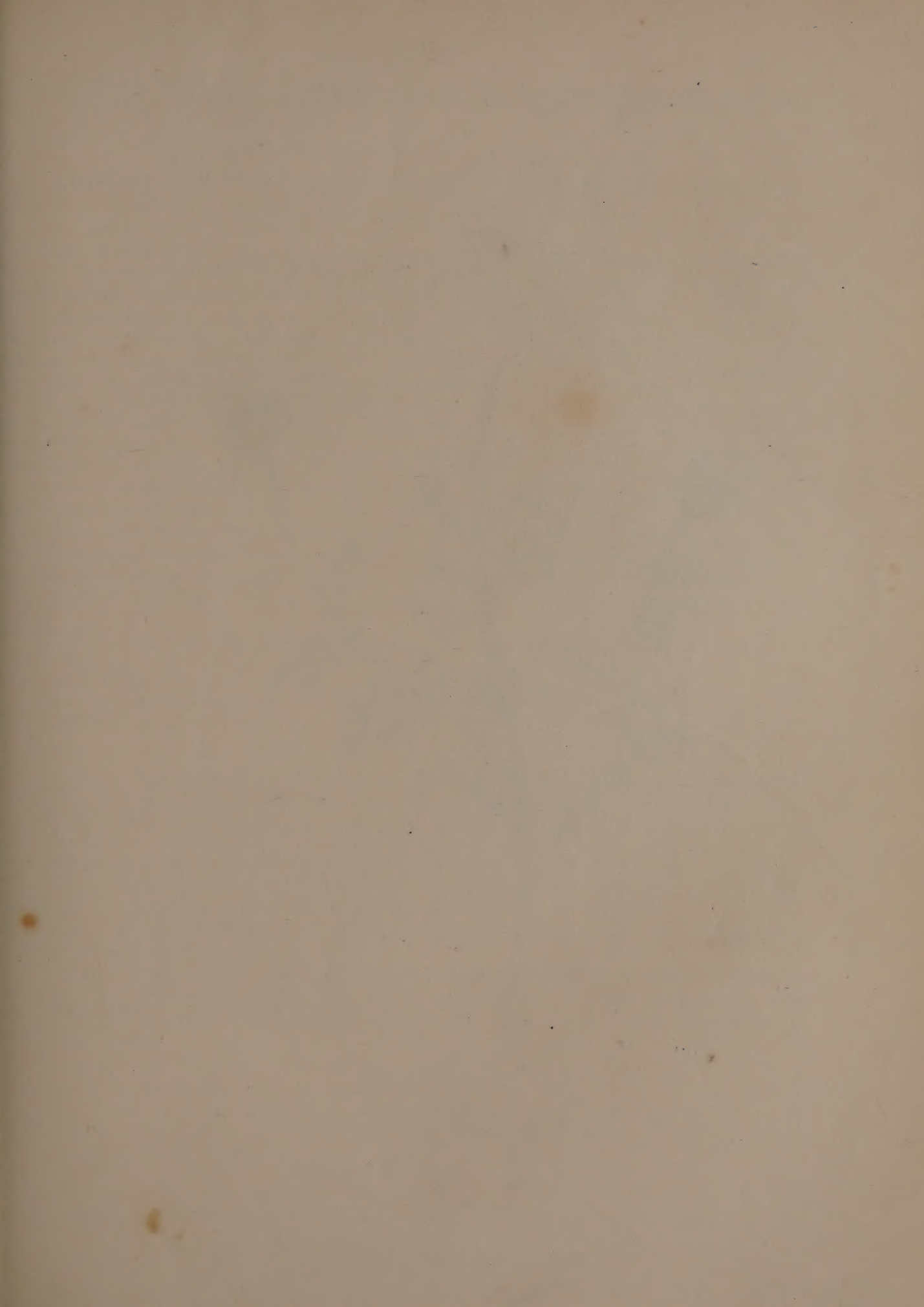
Dallaway speaks of the Turks, "In his pipe an opulent man is extremely sumptuous; the head must be of pale amber, the stick of jasmine wood, with the bark preserved, and the bowl of a delicate red-clay, manufactured at Burgàs in Romelia, and highly ornamented. According to the dignity of the smoker is the length of his pipe, often six or seven feet, when it is carried by two of his servants from place to place with much ceremony; and the bowl is supported by wheels as an aid to supreme indolence. In the summer, for greater coolness, the stem of the pipe is covered with cotton or muslin, and moistened with water. This sovereign recreation is not confined to the men; the ladies, especially those advanced in life, partake of it largely; and, as a delicacy, they mix the tobacco with frankincense, musk, or aloes-wood."*

The kinds of Jessamine most frequently grown in pots are the Yellow Indian, and the Spanish or Catalonian. The first grows to the height of eight or ten feet; the leaves continue green all the year, and the blossoms are of a bright yellow, very fragrant, and blowing from July till October or November. They are frequently succeeded by oblong berries, which turn black when ripe.

The Spanish Jasmine, so named because it came to us from Spain, is a native of the East Indies. The flowers are of a deep blush-red outside, and white within: blowing at the same time as the Indian kind. From the middle of May to the middle of October they may stand in the open air; but must then be housed, having as much fresh air as possible in mild weather. They should have but little water at a time, but that should be given often, so that the earth may always be moist. In spring, the decayed branches should be pruned; and of the Spanish kind the sound ones should be pruned to the length of two feet, which will cause them to shoot strong, and produce many flowers. But this liberty must not be taken with the Indian kind.

In the language of flowers, the Jasmine is the emblem of amiability.

* Dallaway's Constantinople, p. 85.





Anthemis Pyrethrum.

ATHEMIS PYRETHRUM.—SPANISH CHAMOMILE, OR PELLITORY OF SPAIN.

FIG. (a) and (b) represent a front and back view of the floret of the radius; (c) a floret of the disc; (d) the style; (e) the stamens.

PELLITORY of Spain is a perennial plant, a native of the Levant, Syria, Arabia, Barbary, and the south of Europe. It has long been celebrated as a medicinal agent; and merits a place in our collections, on account of the beauty both of the foliage and flowers: it is a very rare plant in this country, notwithstanding it was cultivated here, by Lobel, as long since as 1570. Parkinson, it appears, grew it; as he observes, that the roots of the cultivated plants were much larger than those of the wild ones: he tells us also, that it was too tender to endure our winters; and to the latter cause, as well as to the difficulty of propagating it, for it does not ripen its seeds in this country, its present scarcity has been attributed.

The root is long, tapering, about the thickness of a finger, which runs down a foot or more into the ground, with a brownish cuticle, and sending off several small fibres. From the root proceed several procumbent stems, about a foot in height, round, hairy, commonly unifloral, and seldom branching. The leaves are doubly pinnate, with narrow linear segments, of a pale green colour. The flowers appear in June and July; they are large, terminal, solitary, with the florets of the disc yellow, and those of the radius white on the upper side, and of a purplish colour underneath. The florets resemble those of *Anthemis nobilis*; in the centre, or disc, they are united: those of the circumference, margin or radius, are pistilline, that is, have no stamens, at least in perfect condition; and hence, as the flowers of the disc are sufficient to perpetuate the species, the extra pistilliferous ones of the ray were said by Linnæus to be *superfluous*.

SPECIFIC CHARACTER. *Stems* simple, 1-flowered, decumbent; *leaves* bipinnated, segments linear, pointed.

CHEMICAL ANALYSIS.—M. *Gouthier* says, that in 100 parts of the root of this plant he found—

Oil, fixed	5	Muline	33
— Volatile	a trace	Muriate of Lime	a trace
Yellow colouring matter	14	Lignin	35
Gum	11	Moss	2
			100

QUALITIES.—The dried root of Pellitory has no smell. On being chewed, the taste, which is acrid, is not immediately perceived, but it quickly raises a glowing heat, and a plentiful secretion of saliva. Grew says, “The heat produced by Pyrethrum is joined with a kind of vibration, as when a flame is brandished with a lamp furnace Being chewed, it makes a sensible impression on the lips, which continues (like the flame of a coal betwixt in and out) for nine or ten minutes; but the heat in other parts much longer. This heat is by no means so painful as that which the arum, capsicum, and some other plants produce. Alibert says, “Par la distillation, cette racine fournit une huile butyracée très acrimonieuse;” and it is on this oil, which is deposited in vesicles on the bark, that its pungency depends. It is completely extracted by alcohol and sulphuric ether.

MEDICAL PROPERTIES AND USES.—This root is a powerful stimulant; and if applied in its recent state to the skin, it produces inflammation and vesication, like Mezereon.^a Dioscorides recommended it for tooth-ache, for which it is still beneficially employed by us; and by him and the Arabian physicians it was prescribed for rigors.

^a Grew of Tastes.

The Persians and Moguls consider it to be discutient and attenuant; and the Vytians prescribe an infusion of it, in conjunction with other medicines, as a cordial and stimulant in lethargic cases, in palsy, and in certain stages of typhus fever. In consequence of the immense flow of saliva that it is capable of producing, "inflammations and congestions of the neighbouring parts are relieved. Hence it has been found useful, when chewed, in some kinds of head-ache, chronic ophthalmia, and rheumatic affections of the face, and, by its direct stimulus, in paralysis of the tongue and muscles of the throat." This drug is often adulterated with the roots of *Achillea Plarmica* and *Chrysanthemum frutescens*.

The following is a brief extract concerning the festivities formerly observed on Christmas day at the Inner Temple. Service in the church being ended, the gentlemen presently repaired into the hall and breakfasted on brawn, mustard, and malmsey. At the first course, at dinner, was served up a fair and large boreshead upon a silver platter, with minstralsye. This custom is still observed at Queen's College, Oxford, and tradition represents this usage as a commemoration of an act of valour performed by a student of the college, who while walking in the neighbouring forest of Shotover and reading Aristotle, was suddenly attacked by a wild boar. The furious beast came open mouthed upon the youth, who, however, very courageously, and with a happy presence of mind, is said to have 'rammed in the volume,' and cried *Gracum est*, fairly choking the savage with the sage.*

On Christmas-eve, (new-style,) 1753, a vast concourse of people attended the noted Glastonbury thorn, but to their great disappointment there was no appearance of its blowing, which made them watch it narrowly the 5th of January, the Christmas-day (old style,) when it blowed as usual.—*London Evening Post*.

On the same evening, at Quainton, in Buckinghamshire, about two thousand people went, with lanterns and candles, to view a blackthorn in that neighbourhood, and which was remembered to be a slip from the famous Glastonbury thorn, and that it always budded on the 24th, was full blown the next day, and went all off at night. The people finding no appearance of a bud, it was agreed by all, that December 25 (new style) could not be the right Christmas-day, and accordingly refused going to Church, and treating their friends on that day as usual: at length the affair became so serious, that the ministers of the neighbouring villages, in order to appease them, thought it prudent to give notice, that the *Old* Christmas-day should be kept as before.

The Abbey of Glastonbury in Somersetshire, now a heap of ruins, and of whose origin none but vague memorials exist, was said, by the monks, to have been the residence of Joseph of Arimathea. According to their legend, he came to Britain accompanied by eleven followers, and raised to the memory of the Virgin the first Christian temple erected in this country. The celebrated hawthorn bush is said to have sprung from a staff which Joseph stuck into the ground on Christmas-day, which, blossoming immediately, attested the approbation of God to his mission, as the blooming of Aaron's rod confirmed the priesthood to the family of Israel, while the yearly blooming of this hawthorn, at this unusual season, was regarded by the monks as sufficient confirmation of the truth of their statement. A fable propagated probably by some who had an interest in attaching sacredness to the Abbey and its precincts, easily obtained belief in those superstitious times, when all that was not evident to the senses was recognised as miraculous. And this thorn, which is certainly interesting from its singularity, was regarded formerly almost universally with blind veneration.

The flowering of the Glastonbury thorn was once deemed so great a wonder, that our merchants annually exported its blossoms into foreign countries, for the benefit of the curious. The original tree of the Abbey garden was partly cut down in the reign of Elizabeth by the Puritans, who in their pious zeal to clear away the superstitions of the land, were too prone to destroy anything, however valuable, to which a legend was attached. The other part was cut down during the Great Rebellion. At that time, however, a number of plants derived from the original stock were in existence.

It is now well known that the Glastonbury hawthorn is not regular in the day of putting forth its blossoms; and although it flowers in December, January, or February, this occurs as often in the last as in the first-named month. Cuttings taken from this thorn, have retained their peculiarity of bearing blossoms in winter, and a hawthorn in the arboretum of Kew gardens, is often covered with its white clusters while the snow surrounds it.

* Wade's Walks in Oxford.



Geranium Pectinatum.

CICONIUM BENTINCKIANUM.—BENTINCK CICONIUM.

CLASS XVI. MONODELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, GERNIACEÆ.—THE GERANIUM TRIBE.

THE name, Geranium, is derived from the Greek language, and signifies a crane; the fruit having the form of a crane's bill and head. The English name is Crane's-bill; but the plant is more generally known by its botanical appellation. The Geranium is divided into three genera: *Erodium* is the first, *Pelargonium* the second, and the third retains the old name of Geranium, which, indeed, is still familiarly used for them all, as well as the English name Crane's bill. *Erodium* is from the Greek, and signifies a heron, whose bill is similar to that of the crane; *Pelargonium* is from the same language, and signifies a stork, whose bill is equally long. *French*, le geranium; la geraine; bec de grue; bec de cigogne. *Italian*,—geranio, becco di gru.

Stem shrubby, succulent, branching; *branches* thickly clothed with spreading unequal white hairs, which are slightly bent downwards. *Leaves* roundly kidney-shaped, shortly 5 or 7-lobed, the lobes bluntly rounded, crenulate, the notches very shallow, thickly clothed on both sides with short soft white hairs, which gives a glossy and velvety appearance when viewed towards the light, very soft to the touch, but the leaves altogether thicker, and the hairs on them much longer than in *C. fulgens*, a nearly related plant. *Petioles* a little flattened on the upper side and rounded on the lower, very thickly clothed with spreading white hairs, the smaller ones inclining downwards, the longer ones spreading horizontally. *Stipules* broadly cordate, acute, hairy, and fringed. *Peduncles* very long, cylindrical, clothed with very unequal spreading hairs. *Umbels* many-flowered. *Involucre* of numerous very unequal deciduous bractes, some of them broadly cordate, others lanceolate, acute. *Pedicles* about the length of the bractes. *Calyx* 5-cleft, segments short, lanceolate, acute, spreading. *Nectariferous tube* variable in length, of a purplish brown colour, 3 to 5 times longer than the calyx, flattened and furrowed on both sides, and gibbous at the base, thickly clothed with spreading short hairs, that are all tipped with a little globular gland. *Petals* 5, roundly obovate, the two upper ones rather smallest, two nerved at the back, the nerves branching: lower ones strongly 2-nerved at the base, which branch in small veins all over the petals. *Filaments* 10, erect, connected at the base, 7 bearing anthers, two upper ones very short: *pollen* granular, orange-coloured. *Style* short, naked, pale-coloured. *Stigmas* 5, pale red, fimbriate, reflexed.

There is no end to the varieties of Geranium, and as new ones continually occur, there most probably never will be an end to them. There are many plants bearing this title which have no kind of resemblance to these in their general appearance, and which the most passionate lover or attentive observer of these beautiful plants, unskilled in the mysteries of botanical science, would never discover to belong to them.

The *Erodiums*, with very few exceptions, may be increased—the annual kinds from seed, the perennial by parting the roots in autumn,—and will thrive in the open air. The principal exceptions are the *Crassifolium*, or Upright Crane's-bill, the *Incarnatum*, or Flesh-coloured, the *Glaucophyllum*, or Glaucous-leaved, and *Chamædryoides*, or Dwarf Geranium, which must be treated as the *Pelargoniums*.

The Geranium, specifically so called, may be treated in the same manner as the *Erodiums*, and will thrive in almost any soil or situation. The *Pelargoniums*, which constitute the principal division of this great genus, require more care. They may be easily raised from seed; but a person desiring large and early flowers will procure a plant which has been raised in a hot-bed.

The Shrubby African Geraniums are commonly increased by cuttings, which, planted in June or July, and placed in the shade, will take root in five or six weeks. In September, or in October as the weather is more or less mild, they must be housed: even when grown, the *Pelargoniums* must be housed in winter; at which time they should be gently watered twice a week, if the weather is not frosty. In May they may be gradually accustomed to the open air, and about the end of that month be placed abroad entirely in the day; but should still for the next two or three weeks be under cover at night, though fresh air must be admitted. After that time they must be defended from strong winds, and be so placed as to enjoy the sun till eleven o'clock in the morning.

As the shrubby kinds grow rather fast, they will sometimes fill the pot with their roots, and push them through the opening at the bottom; they must therefore be moved every two or three weeks in the summer, and the fresh roots which are seen pushing through must be cut off. They should also be newly potted twice in the course of the summer; once about a month after they are placed abroad, and again towards the end of August. When this is done, all the roots on the outside of the ball of earth should be carefully pared off, and as much of the old earth removed as can be done without injuring the plants. If they then

require a larger pot, they should be planted in one about two inches wider than that from which they have been removed. Some fresh earth should first be placed at the bottom, and on that the plant should be placed in such a manner, that the ball of earth adhering to it may be about an inch below the rim of the pot: it should then be filled up, and the pot a little shaken to settle the earth about the roots: the earth must then be gently pressed down at the top, leaving a little space for water to be given without running over the rim: finally, the plants should be liberally watered, and the stem fastened to a stake, to prevent the winds from displacing the roots before they are newly fixed.

As the branches advance in growth, and new leaves are formed at the tops of them, the lower ones constantly decay; these should be plucked off every week or fortnight; as they are not only unsightly, but injurious to the air about the plants.

"The soil must be renewed, which often washed
Loses its treasure of salubrious salts,
And disappoints the roots; the slender roots
Close interwoven, where they meet the vase
Must smooth be shorn away; the sapless branch
Must fly before the knife; the withered leaf
Must be detached, and where it strews the floor,
Swept with a woman's neatness, breeding else

Contagion, and disseminating death.
Discharge but these kind offices, (and who
Would spare, that loves them, offices like these)
Well they reward the toil. The sight is pleased,
The scent regaled, each odoriferous leaf,
Each opening blossom freely breathes abroad
Its gratitude, and thanks him with its sweets."

COWPER.

The tube-rooted kinds may be increased by parting the roots, which should be done in August: every tuber that has an eye to it will grow. Such as are raised from slips should be planted in May, June, or July, taking only the last year's shoots, from which the lower leaves must be stripped. When planted, give them water, and place them in the shade. In four or five weeks they will have taken root, when they may be so placed as to enjoy the sun till eleven in the morning, and there remain until removed to their winter quarters. The slips chosen for cutting should not be such as bear flowers; and they should be inserted about half their length in the earth.

Many of the Geraniums are annual; and as they are so numerous, it would be well, where there is room but for a few, to select such as are perennial. The cuttings of different species of the Pelargoniums do not all strike root with equal readiness.

The shrubby kinds are the most tender; the others require shelter from frost only, and should have free air admitted to them whenever the weather is not very severe: in mild weather, the shrubby kinds also may be permitted to enjoy the fresh air.

In sultry weather the Geraniums should all be watered liberally every evening, with the exception of some few of the Pelargoniums, which are of a succulent nature. Those must be watered sparingly. The succulent ones may be discerned by merely plucking a leaf from them. The season for flowering is generally from April to August.

Those who are curious in Geraniums may see them figured in most of their known varieties, in a very beautiful work, published in numbers, entitled Andrews' Monograph on the Genus Geranium. This work represents them in their full beauty; and, being very finely coloured, gives you as good an idea of them as if you had seen the plants themselves. The Elegant, the Magnificent, and the Handsome kinds fully justify their titles. The *Geranium Tricolor Arboreum*, or Three-coloured Tree Geranium, is similar, both in the form of the leaves and the flowers, to the Hearts-ease: the flowers are white and red, and uncommonly beautiful. In appearance it is neither more nor less than a large red and white Hearts-ease. The Oval-leaved Three-coloured Geranium bears a flower somewhat smaller, but of the same form and colour. The Birch-leaved, in all its varieties, is remarkably handsome, with brilliant red flowers. The Wrinkly-leaved has very large and beautiful blossoms: the Sea-green-leaved is an exceedingly elegant and delicate plant: the Heart-leaved particularly luxuriant.

Mr. Andrews observes, that the varieties of the *Geranium Citriodorum*, or Citron-scented Geranium, are the only ones which make a powerful appeal to the olfactory nerves, without rubbing the leaves. Most of them emit an agreeable odour when lightly rubbed with the finger; and a person approaching a Geranium almost mechanically rubs or plucks a leaf for its perfume; or, with some species, for its soft velvety surface:—

"And genteel Geranium
With a leaf for all that come,"

seldom fails of obtaining notice and admiration, however it may be surrounded by the most curious or brilliant exotics.

The Thick-stemmed Geranium is a very singular plant. "This species," says Mr. Andrews, was found (by Mr. Antoni Pantaleo Hove, in 1785, while Botanical Collector to his Majesty) near five feet high, in the bay of Angra Peguena, on the south-western coast of Africa, in the chasms of a white marble rock, apparently without any earth; for, on pulling up the plant, the roots were several yards in length, naked, and as hard as wire; and appeared to have received nourishment solely from the moisture lodged there during the rainy season, assisted by a little sand drifted by the wind into the cavities. The heat was so intense on these rocks as to blister the soles of the feet; and yet all the Geraniums there were in perfection, being just then their flowering season, about the middle of April.*

The scarlet Geranium is the emblem of stupidity.

* Flora Domestica.



Coreopsis Grandiflora.

COREOPSIS GRANDIFLORA.—THE LARGE FLOWERED COREOPSIS.

CLASS XIX. SYNGENESIA.—ORDER III. POLYGAMIA-FRUSTRANEA.

NATURAL ORDER CORYMBIFERÆ.

THE generic name is from the Greek, bug-like, the seed being like a bug or tick: hence it is called by gardeners the Tick-seeded Sunflower.

GENERIC CHARACTER. *Cal.* common, either simple, subimbricate, or doubled; the exterior usually with eight leaflets, which are coarse, and placed in a circle; the interior with as many larger ones, membranaceous, and coloured. *Cor.* compound rayed: corollets hermaphrodite numerous in the disk: females eight in the ray. *Stam.* in the hermaphrodites: filaments five, capillary, very short. Anther cylindric, tubular. *Pist.* in the hermaphrodites: germ compressed; style filiform, length of the stamens; stigma bifid, acute, slender: in the females, germ like the hermaphrodites; style and stigma none. *Per.* none. Calyx scarcely altered. *Seed* in the hermaphrodite solitary, orbiculate, convex on one side, concave on the other, with a transverse protuberance at the top and bottom, surrounded by a membranaceous edge, with a two-horned tip: in the females none. *Recept* chaffy.

This showy annual may be considered a great acquisition to our gardens,

“ where'er she
Rolls her dark eye, and waves her golden hair.”

From the beauty of its flowers it may be said to have eclipsed all the other species of this family: the bright golden appearance of its petals, renders it remarkably conspicuous. Its free disposition to flower, and the continued succession of blooms with which this plant is decked, demand for it a conspicuous place in the flower border.

The Whorl-leaved *Coreopsis* has a yellow flower with a purple centre: it is a showy plant, grows very tall, and continues long in flower. It begins to blossom in July. It is a native of North America, where the flowers, although yellow, are used to dye cloth red.

The Three-leaved has the same coloured flowers, and is from the same country.

The Alternate-leaved, Thick leaved, and Golden, are all from North America. The first flowers in October and November; the other two from August to October. These are all perennial plants, as are most of the genus.

They may be increased by parting the roots, which should be done in autumn, when the stalks begin to decay. The two first prefer a light loamy earth, and exposure to the sun; the others will thrive in almost any soil or situation. There are other species of this genus, some of which are raised in a hot-bed; but their treatment, when grown, is generally the same. The kinds here named will bear the open air. The earth should be kept just moist, and the plants be supported by sticks as they advance in height, or the strong winds of autumn may be apt to break them.

“Lord Bacon, (Essay 46,) calls a garden ‘the purest of human pleasures.’ Admitting and valuing fully the truth of this assertion, it must be added, that it is also a pleasure which is easily procured, and which lasts throughout a very large portion of the year. In saying that a garden is easily procured, we must be understood to mean a garden in which the objects desired by the cultivator are show, gaiety, and neatness. Where rarity and refinement are wished for, the case is wholly altered; the first can be obtained at a small cost, but there is no limit to the expense of the second. It is of the method of cultivating and displaying flowers in a garden of the less refined sort that we shall now chiefly treat, and we do so because of the great increase of these gardens that is visible: the smallest villa, or the larger farm-house, are now rarely without their beds of flowers; and a few hints may be useful to their proprietors. It is obviously desirable, where the varieties of flowers cultivated are few in number, that they should be chosen with regard to the following qualities: the size, the brilliancy, and the smell of their blossoms, the variety of their colours, and more especially the length of time which they continue to blow. This last point is very material, because, if it is disregarded, a large stock of plants will be requisite to keep up a succession, and the labour of planting and replanting, moving and removing, will multiply trouble and expense. As a very large majority of annuals are deficient in this quality, it must be to biennials and perennials that the gardener must chiefly trust. Many of these plants not being sufficiently hardy to stand exposure to an

English winter, some shelter must be provided for them during that season. Room for a considerable number may commonly be found in the house of the owner of the garden: they can be placed in windows and in passages, where they will remain in health, if in cold weather the house is continually inhabited. If this cannot be done, shrubby plants may be well, though not so well preserved, by taking them up at the beginning of winter, cutting back the branches, and stowing the roots in a dry cellar, whence they must be taken early in the spring, and potted and watered in a shed room or very sheltered place to forward them for the summer. The best method of keeping them in the winter (and in this method with care there is no risk whatsoever of loss,) is in a brick pit with two or three glass lights, warmed by a small stove and flue: the cost of building such a pit will usually be about £10. Some breakage of glass must of course be considered as an annual cost. The quantity of fuel used will be too small to take into consideration; a few cinders are all that is requisite. Thousands of plants may be kept in one such pit.

Plants may be multiplied in many ways, by budding, grafting, innarching, by layers, pipings, and cuttings, by suckers, the division of roots and tubers, and by seed: and there are very few species from which by some of these methods an increase cannot be obtained. So easy indeed is the multiplication of plants, and so large a number of new plants can with proper management be raised from one original stock in the course of a year, that the nursery gardeners find it impossible (excepting in rare instances) to maintain a high price for a new flower beyond two or three years: the first year the price of a new flower may be £5, the second it will be about 30s., the third year not more than 2s. 6d. The method applicable to the greatest number of plants, and which is successful with ordinary management, is that of cuttings: from the parent plant small slips or cuttings are taken where the wood is not very tender, and if practicable at a joint. The cuttings should be planted about two inches apart, in large pots or boxes, and the pots placed in a moderately warm hot-bed, shaded from the sun. In about a fortnight they will strike root, and begin to grow. They should then be gradually hardened, be put as far as practicable, into separate pots, and removed into the flue-pit, where plenty of air must be given them in the day-time to prevent their damping off, and a fire be lit before frosty nights: the additional security of mats thrown over the frames must be used when the weather is unusually severe. The time of removing the plants from their winter quarters must depend upon their nature and the climate in which they are to grow. The last week in May or the first in June, is the earliest time at which the tenderest will bear a thorough exposure; for one or two previous weeks, they should be hardened by gradual exposure to the wind and cold nights, care being taken to protect them with mats if either should be in excess. The cultivation of dahlias is commenced in the second or third week in February, when the roots which have been taken up in the autumn should be put into a hot-bed, kept, as far as practicable, at a uniform heat of 62° to 65°; a little of the earth in the bed should be spread over them, and water liberally given them once a day. The roots will then push out suckers, one from each eye: these should be separated from the bulbs: a few fibres of the old root being torn off with them, and being treated after the manner of cuttings, will strike and be ready to plant out at the end of May. It is a fault with gardeners generally that their dahlias flower too late. The first flowers are seldom perfect, and it often happens that the plants have not long reached their prime before they are either pinched by cold nights or perhaps altogether destroyed by frost. It is therefore desirable that the plants should never be checked in the early stages by want of heat or otherwise. Perennial herbaceous plants may be easily multiplied by dividing the roots either in the autumn or in spring. Annuals are principally raised from seed sown in April and May, either upon a hot-bed, from which they must be transplanted, or in the situation in which they are to grow. Sweet-peas and mignonette, *nemophylla insignis*, poppies, &c., are very shy of being transplanted unless from pots. Mallows, *coreopsis*, China, and German asters, French and African marigolds, *eutoca*, *viscida*, *nolana prostrata*, &c., will be better raised on a hot-bed. New annuals are continually produced: we do not, however, consider them generally as a desirable class of flowers.

There are two methods of arranging flowers with a view to their display—1st, putting each species in a separate bed; 2nd, mixing two or more species in one bed. Each has its merits, and in every garden both should be practised. When flower-beds situated close to each other are to be filled with one species only, it will be requisite to consider the height and colour of the flowers to be planted, that both symmetry and harmony may be preserved. Yellow flowers, especially among those that grow from six inches to two feet in height, are more numerous than flowers of any one other colour, and care must be taken not to plant them in undue proportion. When several species are to be planted in the same bed, the largest bed must be chosen, the tallest species be placed in the middle, and various colours mixed together; sufficient space should be left for each plant to grow freely without interfering with or confusing its branches with those that are next to it. Flowers for the most part like a rich, light, new soil. The spot chosen for a flower-garden should be dry, open to the sun, and sheltered from wind and cold.*

* Cyclopædia of the Society for the diffusion of Useful Knowledge.



Curcuma Zedoaria.

CURCUMA ZEDOARIA.—ZEDOARY.

CLASS I. MONANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SCITAMINEÆ.—THE GINGER TRIBE.

FIG. (a and b) represent the flower; (c) the root.

THIS plant is a perennial, growing in sandy open places in various parts of India, particularly in Ceylon and Malabar; flowering during the hot season. The rhizoma is tuberous, oblong, about the thickness of a man's thumb, fleshy, aromatic, and of a pale straw colour. The leaves are radical, as it is only the sheaths that create the appearance of a short stem; they are broad, lanceolate, inequilateral, smooth on both sides, of a green colour, with a ferruginous cloud down the middle on the upper surface, and a fainter cloud in each side of the mid-rib below. They are bifarious and herbaceous, making their appearance with the first showers of April or May, and perish about the beginning of the cool season in November. The inflorescence is a simple erect scape, which rises from among the leaves, and is terminated by a loosely imbricate, cylindrical, truncated, lateral spike of flowers. The outer limb of the corolla is straw-coloured; the lip ovate, emarginate, yellow towards the apex. The filament is petal-like, 3-lobed, bearing the anther in the middle. The anthers are double; the lobes separated by a deep groove, through which the style passes; the lower end of each lobe ending in a large conspicuous spur, which is the essential character of the genus. The germen is superior and 3-celled; style filiform; stigma somewhat bilabiate. The capsule is ovate, smooth, of a pale straw-colour, thin and nearly pellucid, 3-celled; seeds several in each cell.

The pale colour of the roots, crimson bractæas, and ferruginous mark down the centre of the leaves, which is a constant character in this elegant species, readily distinguish it from every other.

QUALITIES AND CHEMICAL PROPERTIES.—The root is brought over in oblong pieces, about the size of the little finger; or in roundish ones about an inch in diameter; of an ash colour on the outside, and white within. They vary little in power, and are therefore used indiscriminately. Zedoary has an agreeable camphoraceous smell, and a bitter aromatic taste. It impregnates water with its smell, a slight bitterness, a considerable warmth and pungency, and a yellowish-brown colour. It imparts more bitterness, but less odour to spirit. It yields in distillation with water, a ponderous, and pungent essential oil; and the decoction thus deprived of the aromatic matter, and concentrated by inspissation, is disagreeably bitter and subacid.

MEDICAL PROPERTIES AND USES.—"This root is a very useful aromatic and stomachic. It was formerly much celebrated for colic, in hysteric affections, when attended by flatulency, and in scurvy and, as its virtues depend principally on its camphoraceous volatile oil, we see no reason for so readily discarding it from the materia medica, as some authors recommend.

Dr. Ainslie informs us, that the best comes from Ceylon, where it is used as a tonic and carminative. It is evidently the *zerumbet* of Serapion, and *zerumbad* of Avicenna, who extols it highly: "Discutit flatus, cor recreat, vomitionem, compescit ad venenatarum bestiolarum morsus efficax est."—*Canon. Med. lib. ii. tract. ii. p. 11.* The modern Arabs consider it to be tonic, de-obstruent, and aphrodisiac. Its spirituous extract once made an ingredient in the cordial confection of the London Pharmacopœia; but an infusion is the form generally prescribed.

DOSE.—In substance, gr. x. to 3ss.

CURCUMA LONGA.—TURMERIC, OR INDIAN SAFFRON.

THE root of this plant, which has been admitted into the Dublin Pharmacopœia, and is used by the dyers to give a yellow colour, is a native of the East Indies, China, and Cochin-China, and is very generally cultivated over the southern parts of Asia. The root, or rather rhigoma, according to Louriero, is perennial, creeping, fleshy, palmate, with cylindrical branches, and covered with a pale saffron coloured bark. Stem none. Leaves broad, lanceolate, large, quite entire, smooth, annual, pale green, densely furrowed with oblique slender lines; petioles long, erect, dilated at their base, minutely supporting and clasping each other. Scape external, three inches long. Flowers sessile, white, with a yellow nectary, one within each scale of the spike.

It is brought chiefly from the East Indies; but is common in the gardens of the Chinese; who use it

as a sternutatory, and it grows abundantly in Malacca, Java, and Belega. In England it was first cultivated by Miller in 1759. The dried root is externally greyish, and internally of a bright yellow or saffron colour; is very hard, and somewhat resembles ginger in figure and size. It should be chosen large, fresh, resinous, hard to break, and heavy.

QUALITIES AND CHEMICAL PROPERTIES.—Turmeric has a slightly aromatic odour, and a bitterish somewhat acrid taste. It readily gives out its active matter, both to aqueous and spirituous menstrea, communicating to the former a deep yellow, and to the latter a fine yellowish-red tint. Distilled with water it yields a small quantity of a gold-coloured essential oil. The alcoholic extract is moderately warm, nauseous, and bitter.

MEDICAL PROPERTIES AND USES.—The medical virtues of turmeric are those of a slight stimulant and tonic. In Eastern countries this root, besides its use in colouring food, is considered as cordial and stomachic. It is a constant ingredient in curries,* and is prescribed by the Tamool doctors, in these watery diarrhoeas which are so troublesome and difficult to subdue in weak habits. Although the use of this root has been celebrated formerly as a powerful remedy in dropsies, intermittent fevers, and as a specific in the jaundice, it is now very rarely prescribed.

Usually at this period the rigour of cold is severely felt. The indisposition of *lie-a-beds* to face its severity is pleasantly pictured by a popular author. He imagines one of those persons to express himself in these terms: "On opening my eyes, the first thing that meets them is my own breath rolling forth, as if in the cottage-chimney. Think of this symptom. Then I turn my eyes side-ways and see the window all frozen over. Think of that. Then the servant comes in. 'It is very cold this morning, is it not?'—'Very cold, sir.'—'Very cold indeed, isn't it?'—'Very cold indeed, sir.'—'More than usually so, isn't it, even for this weather?' (Here the servant's wit and good nature are put to a considerable test, and the inquirer lies on thorns for the answer.) 'Why, Sir. . . . I think it is.' (Good creature! There is not a better, or more truth-telling servant going.) 'I must rise, however—Get me some warm water.'—Here comes a fine interval between the departure of the servant and the arrival of the hot water; during which, of course, it is of 'no use' to get up. The hot water comes. 'Is it quite hot?'—'Yes sir.'—'Perhaps too hot for shaving: I must wait a little.'—'No sir; it will just do.' (There is an over-nice propriety sometimes, an officious zeal of virtue, a little troublesome.) 'Oh—the shirt—you must air my clean shirt:—linen gets very damp this weather.'—'Yes, sir.' Here another delicious five minutes. A knock at the door. 'Oh, the shirt—very well. My stockings—I think the stockings had better be aired too.'—'Very well, sir.'—Here another interval. At length every thing is ready, except myself. I now cannot help thinking a good deal—who can?—upon the unnecessary and villainous custom of shaving; it is a thing so unmanly (here I nestle closer)—so effeminate, (here I recoil from an unlucky step into the coldest part of the bed.)—No wonder, that the Queen of France took part with the rebels against that degenerate king, her husband, who first affronted her eye with a face like her own. The emperor Julian never showed the luxuriancy of his genius to better advantage than in reviving the flowing beard. Look at cardinal Bembo's picture—at Michael Angelo's—at Titian's—at Shakspeare's—at Fletcher's—at Spenser's—at Chaucer's—at Alfred's—at Plato's. I could name a great man for every tick of my watch. Look at the Turks, a grave and otiose people—Think of Haroun Al Raschid and Bed-ridden Hassan—Think of Wortley Montague. Look at the Persian gentlemen, whom one is ashamed of meeting about the suburbs, their dress and appearance are so much finer than our own—Lastly, think of the razor itself—how totally opposed to every sensation of bed—how cold, how edgy, how hard! how utterly different from any thing like the warm and circling amplitude, which

Sweetly recommends itself
Unto our gentle senses.

Add to this, benumbed fingers, which may help you to cut yourself, a quivering body, a frozen towel, and an ewer full of ice; and he that says there is nothing to suppose in all this, only shows, at any rate that he has no merit in opposing it.

* **CURRY POWDER.**—The following receipt for curry powder is taken from the "Cook's Oracle." The ingredients are the same as those used in India, with this difference only, that some of them are in a raw green state, and are mashed together, and afterwards dried and powdered;—Turmeric, three ounces. Coriander seeds, three ounces. Black pepper, mustard, and ginger, one ounce of each. Lesser cardamons, half an ounce. Cayenne pepper, cummin seeds, a quarter of an ounce of each. Thoroughly pound and mix together, and keep them in a well-stopped bottle.



Lilium speciosum L.

LILIUM SPECIOSUM.—SHEWY LILY.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, TULIPACEÆ.

LILIUM SPECIOSUM. STEM a scaly bulb, from which springs the part bearing the leaves and flowers. Leaves scattered, alternate, shortly petiolate, lanceolate, acute, about six inches long, green on both surfaces but of a lighter hue beneath, which is almost shining. From the base to the apex of each leaf run several parallel veins or nerves, which are very prominent on the under surface, the central ones most conspicuous, the lateral ones less so. Flowers axillary and terminal solitary. Perigone (corolla of Linnean writers) of six folioles, of which three are exterior, three placed more internal, of an exquisite rose-colour, Each foliole unguiculate at the base, but with the limb reflected, whitish towards the base, but near the central part, of a pink or red ground, marked with prominent points and round spots. Stamens six, filaments thick below, tapering towards the apex; anthers versatile: pollen brownish yellow. Style one, somewhat club-shaped. Stigma yellow, 3-lobed.

POPULAR AND GEOGRAPHICAL NOTICE. This species, perhaps one of the most gorgeous of that tribe which Linnæus termed the patricians of the vegetable kingdom, is a native of Japan, a country with the productions of which we are very imperfectly acquainted, owing to the jealousy of its people, which is as great as that of their Chinese neighbours. Siebold was, however, allowed to penetrate into the interior, and brought off the present plant among his other spoils.

INTRODUCTION; WHERE GROWN; CULTURE. The first plants were sent by Siebold to Holland, and by propagation are now in the hands of the nurserymen of Ghent, from whom bulbs were purchased by the Messrs. Loddiges at Hackney, in 1836. It is not yet ascertained what degree of temperature this splendid Lily will bear, but it may be presumed that protection from frost will be all that is requisite. A light loamy soil, upon a dry bottom, is favourable to the growth of such plants. From various trials of bog earth, however well it may have been pulverized by frost, or the addition of sand, we believe it to be injurious to the growth of Lilies.*

The accounts we have received of the gardens of antiquity are for the most part considered fabulous. The hanging gardens of Babylon have been represented as romantic in point of situation, and magnificent not only for their extent, but also for the natural difficulties which were surmounted in their construction. The useful had, however, but little part in their design; and of the less aspiring spots, which were made to minister to the wants of the people of that city by the production of esculent vegetables, it has not been thought necessary to say one word.

We have abundant reason for believing that the Jews, during their existence as an independent nation, were accustomed to cultivate fruits in abundance, but no mention can be found of the particular herbs and plants which they without doubt produced for their daily consumption.

Our knowledge of the mode of gardening practised in the Chinese empire has been obtained at periods of recent date; yet, from what we know of the inveterate pertinacity wherewith its inhabitants adhere to the customs of their ancestors, we are warranted in believing that the practice of this art has been without any material alteration for many centuries. The learned Jesuits Du Halde and Le Comte, who resided as missionaries in China, speak in commendation of the manner in which the cultivation of culinary vegetables is managed in that country, where indeed the practice of horticulture appears to have reached to considerable perfection, although the scientific principles upon which it should be founded are wholly unknown.

It is said that the lower orders of people in some parts of China draw a chief part of their nourishment from the produce of their gardens, and that they are in possession of some garden esculents which are peculiar to themselves. We are indebted to China for several valuable additions to our flower-gardens, and among the rest for various species of the Camellia, Pæonia, and Rose; and it is reasonable to suppose that the same care would have been taken for the transmission of seeds of new descriptions of esculents had any such presented themselves.

In an empire comprehending so great a variety of climate, the natural productions must doubtless be extremely varied, and the Chinese are said to be in the enjoyment of most of the fruits and vegetables that

* The Botanist.

are reared throughout Europe. There is little that is worthy of remark in what has been stated with regard to the methods employed for the cultivation of their vegetable gardens. Recent travellers have endeavoured to throw an air of discredit upon the relations of the learned men whose accounts have been noticed. It is indeed not impossible that these reverend Fathers may have endeavoured to draw a little upon the credulity of their readers; but, on the other hand, it must be considered, that while our own intelligent countrymen who have been admitted within the borders of the Celestial Empire have had their opportunities for observation limited to the time employed in the performance of a rapid journey, during which they were always watched by a government escort, their precursors remained for a considerable time in the country, and could consequently examine things at their leisure and in comparative freedom.

From the earliest times the Persians have been great gardeners; but historians and travellers have only thought deserving of their notice gardens which have been constructed for the pleasure of monarchs, or as proofs of their wealth and power.

That the Greeks also took pleasure in horticultural pursuits we have the direct testimony of Theophrastus and Aristophanes. Flowers were always in great request among them. At convivial meetings, at public festivals, and in religious ceremonies, the presence of these was always required. To so great an extent was this use of flowers carried, that artists were established in Athens whose sole occupation it was to compose wreaths and crowns with flowers of different species, each of which was understood to convey some particular mythological idea.

The Romans, amid all their conquests, never forgot to forward the useful arts of life, but carried with them into other countries such as they already possessed, while they showed themselves to be willing learners of others which they found established and which were new to themselves. It is fortunate for the interests of humanity that the benefits which they thus became the means of disseminating were in their nature such as would soften and repair the miseries occasioned by the sword; and that these benefits have remained to bless the countries which their armies overran.

It may be supposed that an art which was capable of ministering so greatly to their personal gratification as that of vegetable gardening would not be neglected by the Romans. Columella has given a very considerable list of culinary plants which they possessed, and some of these must have been both excellent and plentiful, since he speaks of them as being esteemed both by slaves and kings.

The more luxurious among the Romans were accustomed to force vegetables, and the Emperor Tiberius is said to have been so fond of cucumbers that he secured by that means a supply for his table throughout the year.

The kitchen-gardens of the modern Italians contain nearly every vegetable that we possess; but their methods of cultivation are not such as to afford them in that degree of perfection in which we are accustomed to enjoy them, and to which the climate would seem qualified to bring them. The gardens of the peasants throughout the Italian states are but very scantily supplied, gourds and Indian corn comprising nearly all which they are made to contain. It is only in the gardens attached to religious houses that horticulture is pursued with any skill. In the labours of these the friars themselves are accustomed to assist, while in other situations in that country the office of a gardener is commonly filled by one who has had little or no instruction to fit him for the employment.

Gardens are found universally throughout the Netherlands, so that, to use the words of Sir W. Temple, "gardening has been the common favourite of public and private men;—a pleasure of the greatest, and a care of the meanest, and indeed an employment and a possession for which no man there is too high nor too low." There is not a cottage to be seen which has not a garden attached to it; and although this is sometimes exceedingly small, the high degree of culture which is bestowed upon it renders the spot available for the comfort of the cottager's family. Towards this desirable object every particle of matter capable of ameliorating the soil is carefully collected and applied. From these circumstances, it may be readily supposed that the Dutch are possessed of every fruit and esculent vegetable that their climate is capable of maturing.

In France, although gardens are not nearly so universal as in Holland, they are still very generally met with, their characteristic quality being that of neatness. This statement refers, however, more correctly to the northern than to the southern division of the kingdom, where the cottagers' gardens resemble much those of the Italian peasants, as well in their careless mode of culture as in the paucity of their contents. Nothing can be objected against the system pursued by the market gardeners who supply the French metropolis, and by whose skill and industry many vegetables are brought to a very luxuriant growth.

In the north of Europe gardening is in general a favourite pursuit, and the cottages of the peasants are for the most part provided with a spot of ground sufficient in extent to answer the demands of their inmates. This is not so much the case, however, in the Prussian dominions. Cabbages and potatoes form the greater part of the produce there obtained by the cottagers. The gardens of the higher classes are very differently managed, so as to produce vegetables in great variety and abundance.



Eranthis crocata.

CENANTHE CROCATA.—HEMLOCK WATER-DROPWORT.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

FIG. (a) represents a floret of the circumference; (b) a floret of the disc.

CENANTHE CROCATA is decidedly one of the most active of our poisonous vegetables. When received into the stomach in any considerable quantity, it produces very violent effects on the nervous system, which speedily prove fatal. It is a tall umbelliferous plant, somewhat resembling Smallage, or Wild Celery, for which it has sometimes been mistaken. It is found growing on the sides of ditches, and on the borders of lakes and rivers, in many parts of Britain; flowering in July. It is particularly abundant on the banks of the Thames between Greenwich and Woolwich among the reeds, growing with *Apium graveolens*, and some other aquatics; about the Red-house, Battersea; in the Isle of Dogs, and other places near London. Dr. Milne found it in the marshes about Tunbridge; by the side of the Lewisham river, beyond the water-works; in the marshy meadows between South-end and Sydenham; and betwixt Loom-pit hill and Lewisham, on the left-hand in going from New-cross, near the bridge. It is very common in some of the northern counties, and we learn from Dr. Greville, in his "*Flora Edinensis*," that it grows on the bank of a river, at the beautiful village Lasswade, near Edinburgh.

The root is thick, white, fleshy, and divided into three or four small ramifications, somewhat resembling the common parsnip, for which it has sometimes been mistaken. The stem, which as well as the root contains a foetid, orange-coloured juice, is round, furrowed, hollow, much branched, and rises to the height of three or four feet. The form and colour of the leaves, and indeed the general appearance and habit of the plant, have a striking resemblance to the common garden parsnley. The leaves are large, tri-quadri-pinnate, smooth, of a deep green, with the leaflets wedge-shaped, mostly opposite, veined, irregularly cut, and sessile, or placed on very short stalks. The general umbels are large, terminal, many-rayed; the partial ones more numerous, and very short: the general, as well as partial involucre consist of many leaves, varying in number and form. The flowers are white, or pinkish, obcordate, numerous, slightly radiating; the outermost irregular and abortive, the innermost smaller, regular, and prolific: the filaments are thread-shaped, longer than the corolla, with roundish anthers: the germen is ovate, with a slender awl-shaped style, supporting a small obtuse stigma. The fruit is oblong, with five convex ridges, and crowned with the permanent limb of the calyx, and elongated spreading styles.

The scientific name *Cenante*, occurs in Theophrastus and Dioscorides, and is derived *ανη*, from, the vine, and *ανθος*, a flower. Tournefort first applied it to the present genus, because it blossoms at the same time as the vine, and because the flowers reminded him of the smell and colour of that plant. The trivial name *crocata* was given in consequence of the yellow juice which it yields.

Wepfer has confounded this plant with his *Cicuta aquatica*, and complains that Lobel has described the *Cicuta aquatica* under the name of *Cenante Cicutæ facie, succo viroso croceo*, nine years afterwards. In the *Ephemerides Naturæ Curiosorum*, he also asserts that Stalpart Van Der Wiel makes the same mistake; although from the descriptions of Lobel, which were very exact for the times he lived in, and from the plates of Stalpart, it is very evident that they were right. Hoffman also, in his *Medicin. Rational. Systematic*, tom. ii. p. 174. edit. 4to. makes no mention of the difference. His words are, "Ex vegetabilium regno inter præsentissima venena referri debeat cicuta vera, napellus sive aconitum cæruleum, solanum furiosum, hyosciamus, ac datura."

We have already observed, that both the colour and form of the leaves have a striking resemblance to parsnley, and Johnson asserts, that either from ignorance, or a less excusable cause, the roots were in his time frequently sold for those of peony; and that the women likewise, who supply the apothecaries with herbs, vended this pernicious root under the name of Water Lovage. A man has lately been imposing on the inhabitants in the vicinity of town, by selling the roots for those of the beautiful Dahlia.

QUALITIES.—The root, in which the deleterious quality is most powerfully resident, contains a juice that is at first milky, and afterwards becomes yellow. It has an acrid, unpleasant taste, and foetid smell. The other parts of the plant also yield the same kind of juice; and Mr. Erhert, a botanical artist, asserted, that while drawing the plant, the smell from it rendered him so giddy, that he was several times obliged to quit the room, and walk in the air to recover himself: but that having opened the door and windows of the room, the free air enabled him to finish his work.

POISONOUS EFFECTS.—The *Ceanothe Crocata* appears to be the most virulent of the umbelliferous plants: for if admitted into the stomach in but a small quantity, it is instantly productive of the most violent effects: such as convulsions, frequent hiccough, ineffectual retchings, hæmorrhage from the ears, and other violent symptoms which terminate in death; and it is very evident, from the subjoined accounts, that “it exerts an energetic local irritation, and acts powerfully on the nervous system.”

“Eight young lads going a fishing to a brook near Clonmell, in Ireland, meeting with a parcel of Hemlock Dropwort, and mistaking their roots for those of Water Parsnep, ate a quantity of them. About four or five hours after, going home, the eldest, who was almost of man’s stature, without the least previous disorder, on a sudden fell down backwards, and lay sprawling upon the ground. His countenance soon turned very ghastly, and he foamed at the mouth. Soon after, four more were seized in the same manner, and they all died before morning. Of the other three, one became mad, but recovered his senses next day. Another lost his hair and nails; and the third escaped without receiving any harm—which perhaps might be occasioned by his speedy running two miles after he saw the first young man fall, together with his drinking a very large draught of milk warm from the cow, in the midway.”

“M. Charles was called in to attend a whole family who had eaten of the roots of *Ceanothe*. Momentary sensations of an acrid heat, determining to the head; a pungent burning in the epigastric region, and small rose-coloured spots of an irregular shape, extending successively; such were the symptoms produced by the poison. These spots, which did not exceed the level of the skin, first made their appearance on the face, then on the breast, and on the arms; the father alone had the belly swelled out like a balloon. Mucilaginous, and oily medicines, with milk, were successfully administered to them.

“Three French prisoners being in the fields near the town of Pembroke, dug up a large quantity of a plant (which they took to be *wild celery*) to eat with their bread and butter, for dinner. After washing it, while yet in the fields, they all three ate, or rather only tasted, of the roots.”

“As they were entering the town, one of them was seized with convulsions. The other two ran and sent a surgeon, who endeavoured first to bleed, and then vomit him, but in vain; and he died presently. Ignorant of the cause of their comrade’s death, and of their own danger, they gave of these roots to eight other prisoners, who all ate some of them with their dinner. A few minutes after, the two who gathered the plants were seized in the same manner as the first, of whom one died. The other was bled, and an emetic with great difficulty forced down, on account of his jaws being set. This operating he recovered; but was some time much affected with dizziness in his head, though not sick, nor in the least disordered in his stomach. The other eight being bled, immediately, were soon well.

“What they ate was *C. Aquatica cicutæ facie* of Lobelius, which grows in plenty all over the country, and is called by the inhabitants, five fingered root, and is much used by them for cataplasms for the felon, or worst kinds of whitlow. They ate only the root, and none of the leaves or stalks.”—*Gentleman’s Mag.* 1747. p. 321.”

“Stalpart Van Der Weil, in his Observations, takes notice of the deadly effects to two persons, who had eaten these roots, mistaking them for Macedonian parsley. Soon after eating the roots, they were troubled with violent heats in the throat and stomach. One of them bled at the nose; the other was violently convulsed. Both of them died; one in two hours, the other in three.”

“The dead bodies of three unfortunate Belgians, belonging to the 82nd Demi-brigade, were brought to the principal naval hospital at Brest. They had been deceived by the resemblance which the root of *Ceanothe crocata* bore to one made use of in their own country, and ate a great quantity of it. Its sweetish flavour pleased their palates, and contributed to the keeping up of their error. They very soon experienced a general uneasiness, nausea, vertigoes, &c. To these symptoms succeeded convulsions, and with such rapidity, that they sunk under them in less than half an hour, and before any assistance was given.”

MORBID APPEARANCE OF THESE MEN.—Nothing remarkable on the exterior surface of the body. One of these bodies was preserved for four days, and at the end of that time no sign of putrefaction was observed: the brain and its membranes were sound, the lungs distended; their vessels full of black and dissolved blood. In the bronchiæ, trachea, and mouth, was found a frothy and whitish fluid. The lungs in one of these bodies presented on their external surface some petechiæ; the cavities of the two circulatory systems empty; the heart sound. The stomach contracted, and inflamed at its extremity (pyloric?) and lesser curvature; its coats thickened; the intestines puffed up, and their vessels injected; the venous and arterial systems distended with a fluid of the same nature, dissolved and blackish: the derangements were precisely the same in all three.

Further accounts of this dreadful poison may be found in Vanderwiel’s *Observationum Pariorum*, &c. tom. 1, p. 182. In the *Philosophical Transactions*, p. 836, Anno 1758. In Dr. Allan’s *Synopsis Medicinæ*; and Boerhaave’s *Historia Plantarum*; Lug. Bat. p. 79.

USES.—Few practitioners now venture to prescribe this plant; but is said that an infusion of the leaves, or three tea-spoonsful of the juice have been successfully administered for some obstinate cutaneous diseases. In Westmoreland, the country people apply a cataplasm of the herb to the ulcer which forms in the fore part of the hoof in horned cattle, and is called “*foul*.” It sometimes proves diuretic; but its real powers as a remedial agent, are as yet imperfectly understood.



Origanum vulgare

ORIGANUM VULGARE.—COMMON MARJORAM.

CLASS XIX. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

Fig. (a) represents a flower magnified; (b) view of the corolla, with the stamens, &c.; (c) the germen and style; (d) stamen and anther.

THE Common Marjoram is a perennial plant, a native of Europe, growing on dry gravelly hills. With us it chiefly occurs in thickets, on chalk or limestone; flowering in July and August.

From a brownish, creeping, fibrous root-stake arise several erect, leafy, angular, purplish stems, about a foot high, clothed with short recurved hairs, and branched and paniced at the summit. The leaves are deflexed, ovate, pointed, dark green, entire, or slightly serrated, minutely fringed, petioled, and grow in pairs at the joints. The flowers are in dense, convex, terminal panicles, of a light purple or rose colour, and furnished with numerous ovate, sessile bractes, one under each flower, rather longer than the Calyx. The calyx is tubular, five toothed; like the leaves covered with resinous dots, and fringed at the mouth with dense, very conspicuous white hairs. The corolla is funnel-shaped, with the upper lip erect, nearly flat, bifid, and obtuse; the under in three deep, spreading, nearly equal lobes. The filaments are four, thread-shaped, two longer than the corolla, supporting ovate two-lobed anthers. The style, which is filiform, with a bifid reflexed stigma, rises from a four-lobed germen. The nuts are four, ovate, and lodged in the bottom of the calyx.

About eighteen species of this genus, natives of various countries, have been described, and of these the sorts usually cultivated are the common marjoram, *Origanum vulgare*; the pot marjoram, *O. Onites*; the sweet marjoram, *O. Marjorana*; the winter sweet marjoram, *O. heracleoticum*; very much resembling the above species in appearance; but it is of a more aromatic flavour, and is always used in preference. It is indigenous to Greece whence it was introduced into this country in 1640; A sheltered dry situation is most favourable to its growth; the Egyptian marjoram, *O. aegyptiacum*; and the dittany of Crete or Candia, *O. Dictamnus*. Of the first there are varieties, with white flowers, and pale green stalks, with purple flowers and white variegated leaves, which is sometimes cultivated under the title of *pot marjoram*. The fourth sort is at present commonly known by the name of *winter sweet marjoram*, but was formerly called *pot marjoram*, and is chiefly used for nosegays. The leaves resemble those of common sweet marjoram, but the flowers are produced in spikes. The *Origanum Creticum* is the Wild Origanum, or Marjoram of Dioscorides and the modern Greeks. It has much the habit of the common Marjoram of Britain, but the long slender spikes distinguish it both from that and the *O. smyrnæum*, or Smyrna Marjoram.

QUALITIES.—The leaves and flowering tops of this plant have an agreeable odour, and a warm pungent taste which reside in an essential oil.

MEDICAL PROPERTIES AND USES.—This plant resembles Wild Thyme, both in its sensible qualities and medicinal properties, and may be used for the same purposes. Its effects are those of a mild stimulant and carminative; and it was formerly held in high estimation as an emenagogue; but it is now fallen into disuse. The essential oil is sometimes applied to carious teeth on a dossil of lint or cotton, to relieve the pain of tooth-ache. The leaves when dried are used instead of tea, and are said to be exceedingly grateful; and the powder enters as an ingredient into the composition of some cephalic snuffs. For internal use, half an ounce of the leaves are infused in a pint of boiling water, and drank at intervals, or ℞j. of the powder may be taken twice or thrice a day.

ORIGANUM MAJORANA.—Sweet Knotted Marjoram. This plant, which, like the common marjoram, has long been admitted into the British pharmacopœias, is a native of Portugal and Syria. It is supposed to be the *Amaracus* of the ancients, and is said to have been introduced into this country about the year 1573.

* See Philips's History of Cultivated Vegetables.

The stems are numerous, woody, branching and rising more than a foot high; the leaves are ovate and obtuse, entire, petiolate, and downy. The flowers are usually white, with numerous bractes, and are collected into small roundish heads; from which last circumstance it is called knotted marjoram. The calyx is tubular, with five acute teeth. The corolla is funnel-shaped, with the upper lip erect and roundish, and the under divided into three acute teeth. The flowers appear in July. When it is cut and dried for winter use; it must be renewed by seeds annually, for which purpose the seed is imported from France and Italy into England.

QUALITIES.—The leaves and tops have an agreeable aromatic odour, and a moderately warm, bitterish taste. In distillation with water, they yield a considerable quantity of essential oil, amounting, according to Baumé, to $\frac{3}{4}$ xvi. from 150lbs. of the plant. This on being long kept assumes a solid form.

MEDICAL PROPERTIES AND USES.—Sweet marjoram is aromatic and tonic, its virtues residing in its essential oil. It is seldom used medicinally; but is a good deal employed for culinary purposes to give relish to soups, omelets, stuffings, &c. The powder of the dried herb is sternutatory, and like the common marjoram enters as an ingredient into the composition of some cephalic snuffs. Murray, in his *Apparatus Medicaminum*, speaking of this plant, says, “*Tumores mammarum dolentes, scirrhusos, herba recens, viridis, per tempus applicata, feliciter dissipavit.*”

The Germans retain many of the annual customs peculiar to themselves before the Roman conquest. Whether a ceremony described in the “*Athenæum*,” as having been observed in Germany of late years, is derived from the victors, or from the ancient nations, is not worth discussing.

The approach of spring was there commemorated with an abundance of display, its allegorical character was its most remarkable feature. It was called *Der Sommers-gewinn*, the acquisition of summer; and about forty years ago was celebrated at the beginning of spring by the inhabitants of Eisenach, in Saxony, who, for that purpose, divided themselves into two parties. One party carried *winter* under the shape of a man covered with straw, out of the town, and then, as it were, sent him into public exile; whilst the other party, at a distance from the town, decked *spring*, or, as it was vulgarly called, summer, in the form of youth, with boughs of cypress and May, and marched in solemn array to meet their comrades, the jocund executioners of winter. In the meanwhile national ballads, celebrating the delights of spring and summer, filled the skies; processions paraded the meadows and fields, loudly imploring the blessings of a prolific summer; and the jovial merry-makers then brought the victor-god home in triumph. In the course of time, however, this ceremonial underwent various alterations. The parts, before personified, were now performed by real *dramatis personæ*; one arrayed as spring, and another as winter, entertained the spectators with a combat, wherein winter was ultimately vanquished and stripped of his emblematical attire; spring, on the contrary, being hailed as victor, was led in triumph, amidst the loud acclamations of the multitude, into the town. From this festival originated a popular ballad, composed of stanzas each of which conclude thus:

Heigho! heigho! heigho! Summer is at hand?
 Winter has lost the game,
 Summer maintain'd his fame;
 Heigho! heigho! heigho! Summer is at hand.

The day whereon the jubilee takes place is denominated *der Todten sonntag*, the dead Sunday. The reason may be traced perhaps to the analogy which winter bears to the sleep of death, when the vital powers of nature are suspended. The conjecture is strengthened by this distich in the ballad before quoted:

Now we've vanquish'd <i>Death</i> ,		Were <i>Death</i> still unsubdued,
And Summer's return ensured:		How much had we endured!

But of late years the spirit of this festival has disappeared. Lately, winter was uncouthly shaped of wood, and being covered with straw, was nailed against a large wheel, and the straw being set on fire, the apparatus was rolled down a steep hill! Agreeably to the intention of its inventors, the blazing wheel was by degrees knocked to pieces, against the precipices below, and then—winter's effigy, to the admiration of the multitude, split into a thousand fiery fragments. This custom too, merely from the danger attending it, quickly fell into disuse; but still a shadow of the original festivity, which it was meant to commemorate, is preserved amongst the people of Eisenach. “Although” says the writer of these particulars, “we find winter no longer sent into banishment, as in former times, yet an attempt is made to represent and conciliate spring by offerings of nosegays and sprays of evergreen, adorned with birds or eggs, emblematical of the season.” Probably the latter usages may not have been consequent upon the decline of the former, but were coeval in their origin, and are the only remains of ancient customs peculiar to the season.



Narcissus Moschatus.

NARCISSUS MOSCHATUS.—THE LONG-FLOWERED DAFFODIL.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMARYLLIDÆ.—THE NARCISSUS TRIBE.

CALYX none. Petals six, egg-shaped, pointed, flat, attached to the outside of the tube of the nectary, above the base. Nectary of one leaf, cylindrical below, funnel-shaped above, with a coloured border. Filaments awl-shaped, attached to the tube of the nectary, short. Anthers linear. Germen inferior, roundish, with three blunt corners. Style thread-shaped, triangular, longer than the stamens. Stigma three-cleft. Capsule roundish, with three blunt corners, three-celled, three-valved. Seeds numerous, globular.

SPECIFIC CHARACTER AND SYNONYMS. *Narcissus moschatus* (staminibus æqualibus a fundo tubi liberis porrecto-conniventibus) foliis loratis concavis cæsius; flore solitario subcernuo; tubo turbinato brevi longitudine pedunculi cum germine; laciniis lanceolato oblongis obliquis; corona recto cylindrica, vertiliter subplicatorugosa; iisdem longiore, sursum parum ampliata.

In species evidently taken up from figures, often defective, in which distinct ones have been confounded together as synonymous to each other, then trusted to the mercy of a short phrase by way of description, it is not a very easy thing to say for certain which were the precise plants intended by the author as his standards. Such seems to be the case in the present instance; for this is certainly one of the plants called in by Linnæus to his *moschatus*; but whether some other of his synonyms may not be the plant intended, we are at a loss to say. Is this species really distinct from *bicolor*? Are the synonyms added as varieties really plants of the same species? we have not yet met with more than this one of them in our collections. *Moschatus* has escaped the *Hortus Kewensis* nor have we ever seen a figure of it in any recent work. Differs from *bicolor* in having a crown more truly cylindric less cleft and not so widely or far patent; from both that *Pseudo Narcissus*, by its drooping flower, and from the latter by its longer crown and stamens reaching only to about the middle of that; from both again in colour and scent. The pedicel is curved and enveloped by the spathe. We suppose it has received its name from some of the varieties having been described by the old Botanists as possessing flowers "*cum moscari odore*."

This has little scent of any sort; but what it has is pleasant, somewhat like ginger, and not in the least resembling musk. Blooms early in April. Hardy.*

NARCISSUS. Named from the youth Narcissus, who, as the poets tell us, was changed into this flower. Also named Daffodil. Some of the species are called Jonquils.—*French*, narcisse, jonquille. *Italian*, narcisso, giunchiglia.

THE Two-flowered Narcissus,† Pale Daffodil, or Primrose-peerless, is of a pale cream-colour, with a yellow cup in the centre. It grows wild in England and many other parts of Europe, and flowers in April.

Of the Common Daffodil there are many varieties: with a white flower, and yellow cup; a yellow flower, and deep golden cup; a double flower, with several cups, one within the other; Tradescant's Daffodil, "which," says Mr. Martyn, "may well be entitled the Prince or Glory of Daffodils;" the Great Nonsuch; the Great Yellow Incomparable Daffodil, which, when double, is called by gardeners, Butter-and-egg Narcissus. It is called in the Dutch catalogues the Orange Phœnix, and is considered the handsomest of all the varieties. There are many others, which it is not necessary to specify. They mostly flower in April. This in France has many names: as, *le narcisse sauvage*; *le faux narcisse*; *campane jaune* [yellow bell]; *aiau*; *aioult*. In Italian, *narcisso giallo* [yellow narcissus], *trombone giallo* [yellow trumpet].

The Sweet-scented Narcissus, or Great Jonquil, is a native of the South of Europe. Most of the species are fragrant; but this is the most powerful, and is often found too much so to be endured in a room.

The Polyanthus Narcissus called in France *le narcisse de Constantinople*; in Languedoc *pissauleich*: in Italy, *tazzetta*‡ grows naturally in the East, and in many parts of Europe. There are more varieties of this than of any other species. That which is generally called the Cyprus Narcissus, with very double flowers, the outer petals white, the inner, some white and some orange, is the most beautiful of them all, and the most esteemed for blowing in glasses in a room. Its scent is very agreeable, and less powerful than that of the Jonquil.

The White, or Poetical Narcissus, called by the French *janette des contoils* has a snow-white flower,

* Curtis's Botanical Magazine.

† Italian, *tazzettaccia*.

‡ Tazzetta signifies a little cup; tazzettone, and tazzettaccia, imply a cup of a larger size.

with a yellow cup in the centre, fringed on the border with a circle of bright purple. It is sweet-scented, a native of many parts of Europe, and flowers in May. There is a variety with double flowers.

There is a species of *Narcissus* which is called the Late-flowering, and does not blow till autumn. The Common Jonquil is altogether yellow, as is also the Sweet-scented; but the latter has the cup somewhat deeper coloured than the petals.

The preferable kinds are the *Polyanthus Narcissus*, the Jonquil, and the Poetical *Narcissus*; but any of them may be blown, either in glasses or pots, without difficulty, and may be readily increased by offsets.

Although it has been observed that most of these flowers blow in April and May, this only applies to such as are left in the earth to blow at their own season; but, according to their time of planting and their situation, they may be continued for many months in succession. Those planted in pots should be covered an inch over the top of the bulb; and the pot should not be less than seven inches in depth. According to the size of the bulb, one or more may be planted in each pot. They may be planted any time from September to February. Careful admissions of air in mild weather will be beneficial; and they must on no account be denied the enjoyment of daylight and sunshine, towards which they will lean with an almost animal yearning, which it were a sort of cruelty not to indulge.

Water must not be given them until the green begins to appear: they should then be gently watered once or twice a week. In a warm inhabited room they may be blown even in the midst of winter.

The leaves, such as are blown in glasses, should never be plucked off before they decay, or the root will be thereby deprived of much of its natural nourishment. When they have decayed, the bulbs should be taken up, laid in the shade to dry, cleaned, and put in a dry secure place till wanted to replant. The offsets should be taken off, and sorted according to their size. When planted, they may be put two or three together, until they have grown large enough for flowering.

When the plants are somewhat advanced in height they will require a stick to support them. Such plants as are kept in the open air in the spring must be defended from strong winds, which would otherwise be apt to break the stems, particularly after rains; when their cups, being filled with water, will be more heavy:

"All as a lily pressed with heavy rain,
Which fills her cups with showers up to the brinks.
The weary stalk no longer can sustain
The head, but low beneath the burden sinks."

P. FLETCHER.

They will thrive best in a south-eastern exposure, when the morning sun may dry off the moisture which has lodged upon them during the night; and they will better preserve their beauty there than in the shade, or in the scorching heat of the afternoon sun.

Armstrong notices the destructive effect of the easterly winds upon the *Narcissus*: in common indeed with all other flowers, for those must be very hardy that can bear an exposure to them without injury:

"As when the chilling east invades the spring,
The delicate narcissus pines away
In hectic langour, and a slow disease
Taints all the family of flowers, condemned
To cruel heavens."

The poetical origin of this flower, and its own beauty, have conspired to obtain for it the notice of some of the greatest poets. The story told at length in Ovid's *Metamorphoses*, of the transformation of *Narcissus* into a flower, is too well known to need insertion.

The Naiades, lamenting the death of *Narcissus*, prepare a funeral pile, but his body is missing:

"Instead whereof a yellow flower was found,
With tufts of white about the button crown'd."

SANDYS'S OVID.

"What first inspired a bard of old to sing
Narcissus pining o'er the untainted spring?
In some delicious ramble he had found
A little space, with boughs all woven round;
And in the midst thereof a clearer pool
Than e'er reflected in its pleasant cool
The blue sky here and there serenely peeping
Through tendril wreaths fantastically creeping.
And on the bank a lonely flower he spied,

A meek and forlorn flower with nought of pride,
Drooping its beauty o'er the watery clearness,
To woo its own sad image into nearness.
Deaf to light Zephyrus, it would not move;
But still would seem to droop, to pine, to love
So, while the poet stood in this sweet spot,
Some fainter gleamings o'er his fancy shot;
Nor was it long ere he had told the tale
Of young *Narcissus*, and sad Echo's bale."

KEATS.

The scent of the *Narcissus* is generally considered very unwholesome, and the ancients devoted it to the Furies, who were said to torment their sufferers by its stupifying powers.



Rufelia juncea

RUSSELIA JUNCEA.—RUSHY RUSSELIA.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, SCROPHULARINACEÆ.—THE FIG-WORT TRIBE.

CHARACTER OF THE GENUS, RUSSELIA. Calyx five parted, segments acuminate subulate, nearly equal. Corolla hypogynous, tubular, ventricosely-widening towards the summit, throat bearded, limb two-lipped, upper lip emarginately two-lobed, lower lip three-parted, segments nearly equal. Stamens four, inserted into the tube of the corolla, didynamous, included, deflexed; anthers two-celled, cells diverging. Ovary two-celled, the placenta inserted on each side of the dissepiment, bearing numerous ovules. Style simple; stigma obtuse. Capsule subglobose, attenuately beaked, two-celled, splitting by a septical dehiscence into two valves; valves bifid, the placenta at first cohering, ultimately free. Seeds numerous, very small, winged.

DESCRIPTION OF THE SPECIES, RUSSELIA JUNCEA. Stem about three feet high, angular, green, dividing into numerous very slender tetragonal branches of a pale green colour, the young ones nearly devoid of leaves, nodding. Leaves always small, often very minute, larger however than the very slender branches, petiolate, ovate, acute, most delicately serrate or ciliate at the margin, sometimes furnished with one or two teeth. Inflorescence apparently panicle, but in reality consisting of the extreme slender branches, distant from each other, but disposed in the fashion of a raceme, at the points of which one or two stalked and nodding flowers are placed. Calyx small, sepals five, ovate, acute, imbricating. Corolla crimson, tubulose, about an inch long, dilating towards the upper part, limb somewhat unequally five-cleft; segments obtuse, the two superior rather approximating. Stamens four, didynamous. Anthers smooth, oblong, apiculate, lobes parallel. Stigma two-lobed; lobes oblong, flat.

POPULAR AND GEOGRAPHICAL NOTICE. The species as yet known to belong to this small genus, are herbaceous or shrubby plants natives of the Antilles and of Mexico. The present species is the produce of Mexico; and few plants introduced of late years surpass it in the beauty of the flowers, or the delicacy, grace, and singularity of its branches. The elegant green pendulous branches terminated by the rich crimson flowers, at once charm the eye, and excite an interest by causing us to consider how such thread-like organs and the minute leaves attached to them, can accomplish the elaboration of sufficient sap to nourish and perfect the fruit with its multitude of seeds. This is the more remarkable when we reflect that in the same country grows the *Agave Mexicana*, with its large, thick, and enduring leaves, which need several years before they can elaborate sufficient sap to enable it to elevate its flower stem with its countless flowers. These contrasts testify the boundless power of the Sovereign Creator, and the contemplation of them prompts us to exclaim with our great poet,

"These are thy glorious works, Parent of good,
Almighty, thine this universal frame,
Thus wondrous fair, thyself how wondrous then!
Unspeakable, who sit'st above these heavens
To us invisible, or dimly seen
In these thy lowest works; yet these declare
Thy goodness beyond thought, and power divine."

INTRODUCTION; WHERE GROWN; CULTURE. Sent from Mexico by Count Karwinski to Berlin and Munich, whence it was introduced into Britain in 1833.

It requires the protection of the greenhouse, and flourishes well in any light rich soil. It is easily propagated by cuttings. It flowers freely in July and August.

DERIVATION OF THE NAMES. *Russelia*, in compliment to Dr. Alexander Russell, an English physician who spent some time at Aleppo, and wrote an account of the Natural History of that place. *Junce* from *juncus*, a rush, from the rush-like character of the branches.*

Yesterday I had the pleasure to dine with a very amiable and worthy friend at his villa a few miles distant from town; and while the company were high in mirth over the afternoon's bottle, slipped aside to enjoy half an hour's sober thought and salutary air. An almond-tree, in the centre of the garden, presented an immense tuft of flowers covering its whole surface. Such a glow of floral beauty would at any time have been an object of admiration; but at a season when every thing else is dead, when not a leaf appears on any of the vegetable tribe besides, and the adjacent trees are bare skeletons, it claimed a peculiar share of attention.

* The Botanist.

An inquisitive eye loves to pry into the inmost recesses of objects, and seldom fails of a reward more than proportioned to the trouble of the research. Every one must have observed, that in all flowers there is an apparatus in the centre, different from the leafy structure of the verge, which is what strikes the eye at first sight; the threads which support the yellow heads in the centre of the rose, and those which serve as pedestals to the less numerous, but larger, dusky black ones in the tulip, are of this kind. Formerly, these were esteemed no more than casual particles, or the effect of a luxuriance from an abundant share of nourishment sent up to the leaves of the flower, throwing itself into these uncertain forms, as they were then esteemed. But science disclaims the supposition of nature's having made any thing, even the slightest particle of the meanest herb, in vain; and, proceeding on this hypothesis, has discovered that the gaudy leaves which were, at one time, supposed to constitute the essence of the flower, are merely a defence to the thready matter within; which, despised as it used to be, is indeed the most essential part of the whole—is that for which almost the whole has been formed, and that alone on which the continuation of the species depends. It has been found that, of the minutest threads in this little tuft, there is not one but has a destined office, not one but joins in the common service; and that, though so numerous and apparently indefinite, every single flower on the whole tree has precisely the same number to the utmost exactness, and precisely in the same situation. Nor is it credible that there ever has been, or ever will be, through successive ages, a tree of the same kind every single flower of which will not be formed with the same perfect regularity.

In the beautiful Almond-tree before me I saw a confirmation of this accurate exactness in the care of providence. Not a flower of the millions that crowded upon the sight in every part but contained the precise number of thirty little threads; and not one of these threads but had its regularly-figured head placed in the same direction on its summit, and filled with a waxy dust, destined for impregnating the already teeming fruit. The fruit showed its downy rudiments in the centre, and sent up a peculiar organ to the height of these heads, to receive the fertilising dust when the heads should burst, and convey it to the very centre of the embryo fruit.

Such is the economy of nature in the production of these treasures; but she has usually more purposes than one to answer in the same subject. It was easy to conceive, that one of all these little receptacles of dust might have contained enough of it to impregnate the kernel of a single fruit, for each flower produces no more. Yet, surely, twenty-nine in thirty had not been created in vain. It was not long before the mystery was explained to me.

The sun shining with unusual warmth, for the season, led forth a bee from a neighbouring hive, who directed her course immediately to this source of plenty. The little creature first settled on the top of one of the branches; and, for a moment, seemed to enjoy the scene as I did. She just gave me time to admire her sleek, silky coat, and glossy wings, before she plunged into a full blown blossom, and buried herself among the thready honors of the centre. Here she wantoned and rolled herself about, as if in ecstasy, a considerable time. Her motions greatly disconcerted the apparatus of the flower; the ripe heads of the thready filaments all burst, and shed a subtile yellow powder over the whole surface of the leaves, nor did she cease from her gambols while one of them remained whole, or with any appearance of the dust in its cavity.

Tired with enjoyment, she now walked out, and appeared to have paid for the mischief she had done at the expence of strangely defiling her own downy coat. Though some of the dust from the little capsules had been spread over the surface of the flower, the far greater part of it had evidently fallen upon her own back, and been retained there among the shag of its covering.

She now stationed herself on the summit of a little twig, and began to clear her body of the newly gathered dust, and it was not half a minute before her whole coat was as clean glossy as at first: yet it was most singular not a particle of the dust had fallen upon any of the flowers about her, where it must have been visible as easily as on the surface of that it was taken from.

A very labored motion of the fore legs of the bee attracted my eye, and the whole business was then immediately explained; I found she had carefully brought together every particle that she had wiped off from her body, and formed it into a mass, which she was now moulding into a firmer texture, and which she soon after delivered to the next leg, and from that, after a little moulding more, to the hinder one, where she lodged it in a round lump in a part destined to receive it; and, having thus finished her operation, took wing for the hive with her load.

It was now evident, that what had seemed sport and pastime was business to the insect; that its rolling itself about was with intent to dislodge this yellow dust from the little cases that contained it; and that this powder, the abundance of which it was easy to perceive could not be created for the service of the plant, was destined to furnish the bee with wax to make its combs, and to serve us for a thousand purposes afterwards.

The return of this single insect to the hive sent out a legion upon the same expedition. The tree was in an instant covered as thick almost with bees as with flowers. All these employed themselves exactly as the first had done, except that some forced themselves into flowers scarcely opened, in which the reservoirs of this waxy powder were not ripe for bursting. I saw them bite open successively every one of the thirty heads in the flower, and, scooping out the contents, add them to the increasing ball that was to be carried home upon the thigh.



Polygala Senegal

POLYGALA SENECA.—RATTLE-SNAKE MILKWORT.

CLASS XVII. DIADELPHIA.—ORDER III. OCTANDRIA.

NATURAL ORDER, POLYGALACEÆ.—THE MILKWORT TRIBE.

FIG. (a) represents the three smaller leaves of the calyx; (b) the different parts of the corolla, &c.; (c) the capsule and seeds; (d) the root.

THE *Polygala Senega* is a hardy perennial, a native of North America, growing in most latitudes in the United States, on the sides of hills and in dry woods. It is abundant in Kentucky, Ohio, and Tennessee; flowering from June to August. It was first cultivated in England by Philip Miller in 1759; but having little beauty to boast it is rarely met with in our gardens. There is a variety with whitish flowers in a dense spike or cluster, and another with rose-coloured flowers in a lax spike and narrower leaves. The rose-coloured variety, as it has been considered by Michaux and Pursh, is said to be a distinct species. Some varieties, which Professor Bigelow possesses from Carolina, have branching, pubescent stems, and very long loose spikes. Of this genus M. Decandolle enumerates above one hundred and sixty species, growing in every quarter of the globe; but one only, *Polygala vulgaris*, or common Milkwort, is British.

The root of *Polygala Senega* is woody, branched, contorted, about half an inch in diameter, and covered with a thick dull yellowish or greyish bark; it sends up several annual stems, about a foot in height, erect, slender, round, simple, smooth, of a dull purple colour below, and greenish towards the top. The leaves are alternate, scattered, lanceolate, pointed, smooth, somewhat undulated, occasionally tinged with red, and nearly or quite sessile: towards the base they are smaller and nearly ovate. The flowers are in loose, terminal spikes, apparently papilionaceous, generally white, often tinged with purple, and sometimes pale yellow. The calyx, which in this genus is the most conspicuous part of the flower, consists of five leaflets; the two largest of which are roundish-ovate, white, and slight veined. The corolla is small, closed, having two obtuse lateral segments, and a short crested extremity. The stamens are all united at the bottom, and attached to the corolla; with eight tubular anthers opening at the summit. The fruit is an obcordate, compressed, 2-celled, 2-valved capsule, containing two oblong-obovate, slightly hairy, curved, blackish seeds. The spike opens very gradually, so that the lower flowers are in fruit, while the upper ones are in blossom.

The generic name is compounded of two Greek words, *πολυς*, *much*, and *γαλα*, *milk*, in allusion to its reputation of increasing the secretion of milk in those animals that partake of it. But at this time, the species which gave origin to the idea is not known.

QUALITIES AND CHEMICAL PROPERTIES.—The root of the *Polygala Senega* has little or no smell; but to the taste it is bitter, pungent, subtle, and peculiar. After chewing, it leaves a sensation of acrimony in the mouth, and still more so in the fauces, if it have been swallowed. Both aqueous and spirituous menstrua extract its virtue; but the alcoholic most completely. The powder in substance is, however, more active than either the tincture or decoction. The bark of the root contains the most active principles of the plant: the ligneous portion being comparatively inert. Alcohol dissolves a substance apparently of the resinous kind, giving a precipitate when water is added. Iron produces little change in solution of this root, and gelatin occasions no alteration whatever.

A peculiar vegetable principle has recently been discovered by Gehlen, in the root of the *Polygala Senega*, to which he has given the name of *senegin*. It is obtained by treating the alcoholic extract with water and ether; the latter abstracting a portion of resin, and the former dissolving a little mucilaginous and saccharine matter. It is a solid substance of a brown colour, and excites violent sneezing like tobacco. It has a disagreeable taste, is soluble in alcohol, but insoluble in water and ether.

M. Reschier is also said to have isolated from six ounces of the root of *Senega*, a hundred grains of a peculiar alkaline principle, '*Polygaline*,' which is united to an acid termed '*Polygalinique*.' It is regarded as a substance *sui generis*, and as containing the active principle of the plant; but we know not whether it be identical with the *senegin* of Gehlen.

MEDICAL PROPERTIES.—This root is sudorific and expectorant in small doses, and emetic and cathartic in larger ones. More than ninety years have elapsed since Dr. Tennant, of America, invited the attention of physicians to this medicine as an antidote to the bite of the rattle-snake; and a reward was voted him by the legislature of Pennsylvania for the promulgation of this supposed property. It was from

the Senegaroos, a tribe of Indians, that he obtained a knowledge of this their secret remedy; which they applied externally and internally. Dr. Tennant himself saw, or thought he saw, beneficial effects ensue: but when we consider the number of cases of recovery from the bite of this serpent, under every variety of treatment, as recorded in many American publications, we naturally infer that spontaneous recoveries are perhaps as frequent as those which are promoted by medicine.

More certain success appears to attend the use of Senega in pneumonia and some diseases related to it. In the advanced stages of pneumonic inflammation, after venesection and the other usual remedies have been carried to their proper extent, and the cough still remains dry and painful, the debility of the patient forbidding further depletion, it is said to afford very marked relief by promoting expectoration and relieving the tightness and oppression of the chest. Various medical writers have spoken favourably of its employment in these cases, amongst whom are Bigelow, Bouvart, De Jussieu, and Lemory.

Benefit has been derived in asthma from the use of the plant. "Decoction of Seneka," says Dr. Bree, is eminently useful in the first species, administered to old people; but in the paroxysms of young persons I have found it too irritating. This distinction applies to convulsive asthma purely uncomplicated, but the disease is frequently observed in middle-aged and elderly persons to take the character of *peripneumonia notha* in the winter and spring, and seneka is then the most useful medicine that I have tried. In such cases it should be united with the acetated ammonia, during the febrile state, and as this state gives way, the addition of squill and camphorated tincture of opium will be found to promote expectoration, perspiration, &c.

Sir Francis Millman, Dr. Percival, and others, have spoken highly of it as a diuretic in dropsies; and in consequence of its well ascertained power of exciting salivation, it was introduced into notice by Dr. Archer of Maryland, as a remedy of great power in croup. In the early stages of this complaint, however, it may be questioned, as Professor Bigelow justly observes, how far a medicine, which acts as a stimulant to the fauces and neighbouring organs, is entitled to reliance in a local inflammation of the trachea. Dr. Barton and other celebrated medical practitioners in America, place great reliance on it as an auxiliary to the other remedies that are usually employed in croup; and a series of well-conducted experiments by any able man in our country, to ascertain its real merits in this disease, would be a boon gratefully received by the profession. Dr. Archer's mode of administering it is, to give a tea-spoonful of a strong decoction once or twice in the hour, according to the urgency of the symptoms; and during the intervals, a few drops occasionally, to keep up a sensible action upon the mouth and throat, until it acts as an emetic or cathartic. In consequence also of its universally stimulant and diaphoretic effects, it has been found a powerful remedy in the treatment of chronic rheumatism.

Dose.—In powder, from twenty to thirty grains.

DECOCTUM SENEGÆ. L.E.

"Take of the root, *one ounce*, water, *two pints*. Boil down to a pint and strain." Dose, one to three ounces three or four times a day.

Beautiful!

How beautiful is all this visible world!
How glorious in its action and itself;
But we, who name ourselves its sovereigns, we,
Half dust, half deity, alike unfit
To sink or soar, with our mix'd essence make

A conflict of its elements, and breathe
The breath of degradation and of pride,
Contending with low wants and lofty will
Till our mortality predominates,
And men are—what they name not to themselves,
And trust not to each other.—Byron.

SEASONABLE DESIRES. With the incoming of spring there is an outgoing from town, or a wish to do so. We all love what nature proffers to our enjoyment. Now—the humble tenant of the lofty attic in the metropolis, cultivates a few flowers in garden pots, within the ridge of the parapet that bounds the eye from all things but sky and clouds; and when he can, walks with his wife in search of fields where grass grows and cattle feed. Now—the better conditioned take a trip a few miles beyond the suburbs, and all manifest hopes or wishes for prolonged enjoyment of the country in the approaching summer. Now—ready furnished cottages and lodgings, which have been "to let" throughout the winter in the villages near the metropolis, find admirers, and some of them find occupiers. Now—the good wife reminds her good man—"My dear it's very hard, after so many years not to be able to afford a little comfort at last—we can't, you know, live in this way for ever. What a charming day this is. Let us see and get a little place a little way from town against the fine weather comes; the walk there and back will do *you* good; it will do us *all* good; and the expense won't be miss'd in the long run." Now the thoughtful and thrifty, and the unthoughtful and the unthrifty, of certain and uncertain income, begin to plan or scheme where to go "after parliament's up," or in what neighbourhood, or on what site, to hire or build a house suitable to their real or imaginary wants. Now, in other words, "all the world" in London is thinking how or where "to go out of town bye-and-bye."



Bignonia Radicans.

BIGNONIA RADICANS.—ASH-LEAVED TRUMPET FLOWER.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, BIGNONIACEÆ.—THE TRUMPET-FLOWER TRIBE.

FIG. (a) part of the corolla removed, showing the position of the stamens with the barren filament; (b) pistil.

BIGNONIA; so named by Tournefort in compliment to Abbé Bignon, librarian to Louis XIV.

Perianth one-leafed, erect, cup-form, five-cleft. Monopetalous, campanulate. Tube very small, the length of the calyx, Throat very long, ventricose beneath, oblong-campanulate. Border five-parted, the two upper divisions reflex, lower patulous. Filaments four, subulate, shorter than the corolla; two longer than the other two. Anthers reflex, oblong, as it were doubled. Germ. oblong. Style filiform, situation and form of the stamens. Stigma capitate. Silique two-celled, two-valved; partition membranaceous, parallel, thickened at the sutures. Seeds very many, imbricate, compressed; membrane winged on both sides. Leaves pinnate; leaflets gashed. Stem with rooting joints. Branches long and pliant, putting out fibres at their joints for the purpose of attaching themselves to whatever they are growing upon. Leaves opposite at every joint. Leaflets in four pairs, terminating by an odd one; they are serrate, and end in a long sharp point. The flowers are produced at the end of the shoots of the same year, in large bunches; they have long swelling tubes shaped somewhat like a trumpet, whence this plant has the appellation of Trumpet-flower. The corolla is orange.

This climbing shrub possesses peculiar attractions. The splendour of the large and numerous panicles of flowers of various shades of pink and orange with which it is adorned during the month of August, is sufficient to call forth the admiration of the lover of the flower-garden. The luxuriant growth of its branches will be found serviceable for the purpose of obscuring offensive walls, particularly if intermixed with climbing evergreens; the flowers of many of which, being much less showy, are nearly lost at the height to which these plants are at times required to be trained. The splendid flowers of the *B. radicans* will therefore enhance the value of such collections of climbers; and the flowers of each shrub will add materially to the delicacy, beauty, and brilliancy of each other.

This shrub is a native of North America, and was introduced in 1640. It is hardy, and may be propagated by layers or by pieces of the root: these should be put in about the beginning of April. The roots should be kept in pots for one year, when they may be planted out. A light sandy earth will be found most congenial to the growth of this shrub, which should be planted against a south or south-east wall.

May, says a popular Author, or the time of the year analogous to it, in different countries, is more or less a holiday in all parts of the civilized world, and has been such from time immemorial. Nothing but the most artificial state of life can extinguish, or suspend it: it is always ready to return with the love of nature. Hence the vernal holidays of the Greeks and Romans, their songs of the swallow, and vigils of the Goddess of love; hence the Beltein of the Celtic nations, and the descent of the god Krishna upon the plains of India, where he sported.

In no place in the world, perhaps, but in England (which is a reason why so great and beautiful a country should get rid of the disgrace,) is the remnant of the May-holiday reduced to so melancholy a burlesque as our soot and tinsel.

In Tuscany, where we have lived, it has still its guitar and its song; and its jokes are on pleasant subjects, not painful ones. We remember being awakened on May-day morning, at the village of Mariano near Fiesole, by a noise of instruments, and merry voices, in the court of the house in which we lodged,—a house with a farm and vine-yard attached to it, where the cultivator, or small farmer, lived in a smaller detached dwelling, and accounted to the proprietor for half the produce,—a common arrangement in that part of the world. The air which was played and sang was a sort of merry chaunt, as old perhaps as the time of Lorenzo de Medicis; the words to it were addressed to the occupiers of the mansion, and the neighbours, or any body who happened to shew their face; and they turned upon an imaginary connexion between the qualities of the persons mentioned and the capabilities of the season. We got up, and looked out of window; and there, in the beautiful Italian morning, under a blue sky, amidst grass and bushes, and the white out-houses of the farm, stood a group of rustic guitar-players, joking good humouredly upon every one who appeared, and welcomed as good humouredly by the person joked upon. The verses were in homely couplets; and the burden or leading idea of every couplet was the same. A respectable old Jewish gentleman,

for instance, resided there; and he no sooner shewed his face, than he was accosted as the patron of the corn season,—as the genial influence, without whom there was to be no bread?

Ora di Maggio fiorisce il grano,
Ma non puo estrarre senza il Sior Abramo.

| Now in May time comes the corn; but, quoth he, though come I am,
I should never have been here, but for Signor Abraham.

A lady put forth her pretty laughing face (and a most good tempered woman she was,) She is hailed as the goddess of the May-bush.

Ora di Maggio viene il fior di spina,
Ma non viene senza la Signora Allegrina.

| Now in May time comes the bush, all to crown its queen-a,
But it never would, without Signora Allegrina.

A poor fellow, a servant, named Giuseppino or Peppino (Joe) who was given to drinking (a rare thing in Italy) and was a great admirer of the fair sex, crosses the court with a jug in his hand. It was curious to see the conscious but not resentful face with which he received the banter of his friends.

Ora di Maggio fiorisce amor e vino,
Ma ni l'un ni l'altro senza il Sior Peppino.

| Now in May time comes the flower of love and wine also;
But there is neither one nor t'other, without Signor Joe.

It would be an "advancement" to look out of a May-morning in England, and see guitar-players instead of chimney-sweeps.

Nature this month has not forsaken her festivities. She still scatters flowers, and revels in dews; she still loves her leafy garniture, and the bursts of unoppressive sunshine; for though we moderns may abandon the customs of our forefathers, and may even deny to May those joyous attributes with which they delighted to invest her; though we complain of cold winds, dull days, and frosty nights, cutting down flower and leaf, and have them too, yet is May a gladsome month withal. Vegetation has made a proud progress; it has become deep, lavish, and luxuriant; and nothing can be more delightful than the tender green of the young hawthorn leaves. Primroses still scatter their million of pale stars over shady banks, and among the mossy banks of hazels; and once more, amid the thickly-springing verdure of the meadow, we hail the golden and spotted cowslip. In woods there is a bright azure gleam of *Myrorotis sylvatica*, a species of forget-me-not, and of those truly vernal flowers called by botanists *Scilla nutans*, by poets blue-bells, and by country folks cuckoo's stockings. The ferns are pushing forth their russet scrolls amongst the forest moss and dead leaves. In pools—and none of our indigenous plants can rival our aquatic ones in elegance and delicate beauty—are this month found the lovely water-violet (*Hottonia palustris*) and the buck bean, originally *bog-bane* or bog plant, from its place of growth (*Menyanthes trifoliata*), like a fringed hyacinth. The gorse and broom are glorious on heaths and in lanes.

In the early part of this month, if we walk into woods, we shall be much struck with their peculiar beauty. Woods are never more agreeable objects than when they have only half-assumed their green array. Beautiful and refreshing is the sight of the young leaves bursting forth from the grey boughs, some trees at one degree of advance, some at another. The assemblage of the giants of the woods is seen, each in its own character and figure; neither disguised nor hidden in the dense mass of foliage which obscures them in summer;—you behold the scattered and majestic trunks; the branches stretching high and wide; the dark drapery of ivy which envelopes some of them, and the crimson flush that grows in the world of living twigs above. If the contrast of grey and mossy branches, and of the delicate richness of young leaves gushing out of them in a thousand places be inexpressibly delightful to behold, that of one tree with another is not the less so. One is nearly full clothed,—another is mottled with grey and green, struggling as it were which should have the predominance, and another is still perfectly naked. The wild-cherry stands like an apparition in the woods, white with its profusion of blossom, and the wilding begins to exhibit its rich and blushing countenance. The pines look dim and dusky amid the lively hues of spring. The abeles are covered with their clusters of albescent and powdery leaves and withering catkins; and beneath them the pale spathes of the arum, fully expanded and displaying their crimson clubs, presenting a sylvan and unique air. And who does not love 'the wood-notes wild?' We again recognize the speech of many a little creature who, since we last heard it, has traversed seas and sojourned in places we wot not of. The landscape derives a great portion of its vernal cheerfulness not merely from the *songs* of birds but from their cries. Each has a variety of cries indicative of its different moods of mind, so to speak, which are heard only in spring and summer, and are both familiar and dear to a lover of nature.



Anethum graveolens

ANETHUM GRAVEOLENS.—GARDEN DILL.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

FIG. (a) represents an unexpanded flower, somewhat magnified, with the apexes of the petals inflected; (b) the same fully expanded; (c) a stamen and anther; (d) the germen and styles; (e) a seed; (f) the same, cut transversely.

DILL is a hardy biennial plant, a native of the corn fields of Spain and Portugal, and appears to have been introduced into England about the year 1570. According to Dr. Ainslie, it is also cultivated in Hindostan, where the seeds, called by the Brahmins *mishi*, are frequently sold in the bazaars of Lower India for caraway seeds. It is sometimes cultivated in our gardens as a medicinal plant, flowering in June and July.

The root is long, tapering, and whitish, striking deep into the ground, and sending up several erect, round, leafy, branching, jointed stems, rising to the height of two or three feet. The whole plant, with the exception of the flowers, is smooth, and of a deep glaucous-green colour. The leaves, as in all the plants of this natural order, are placed alternately. They are large and doubly pinnated, upon broad, sheathing footstalks, with the leaflets linear and pointed. The flowers are produced in broad, flat, terminal umbels, of numerous general and partial rays, without either general or partial involucre. There is no calyx. The corolla consists of five equal, obovate, concave, yellow petals, with a broad, obtuse, involuted point. The filaments are five, yellow, spreading, incurved, and longer than the corolla, and bearing roundish, yellow anthers. The germen is inferior, or placed below the insertion of the petals, ovate, covered by the nectary, and surmounted by two short recurved styles, with simple stigmas. The seeds are oval, flat or much compressed, with three dorsal, equidistant prominent ribs, of a brown colour, and surrounded with a dull, pale yellow membranous expansion.

CULTURE.—It is raised from seed, of which, says Mr. Loudon, half an ounce is sufficient for a bed three feet by four feet. "Sow annually in February, March, or April, or occasionally in autumn, as soon as the seed is ripe to come up stronger in the spring, in any open compartment, either in drills six or seven inches apart, or broadcast thinly, and raked in evenly. The plants should remain when raised, and may be thinned moderately, should they rise too thick. They will shoot up in stalks, with leaves and seed umbels in summer and autumn, for use in proper season."

QUALITIES.—The whole plant, particularly the seeds, which are the parts directed for use in the British Pharmacopœias, have a powerful aromatic odour, and a moderately warm pungent taste. These qualities depend on an essential oil, which is extracted by distillation with water. The seeds yield their active matter completely to alcohol, and partially to boiling water, by infusion.

MEDICAL PROPERTIES AND USES.—Like the anise and caraway, the seeds of Dill are carminative and stomachic; hence they are used chiefly in dyspepsia, and in the flatulence to which infants are subject. They were formerly supposed to promote the secretion of milk, but this opinion is long since exploded. In India, where the plant is not uncommon, Dill seeds are given in infusion, as a stomachic, and also a grateful cordial drink.

DOSE.—In powder from gr. xv. to 3j; of the essential oil, gtt. j. to gtt. iij.

OFF. PREP.—Aqua Anethi.

A delightful writer says, we can no more help turning to Mr. Howitt's pages for another extract, than we can into the fields themselves. They are truly vernal, rich in hopes of every kind, and

The blue sky bends over all:—

a cheerful religion is upon them. A kind and embracing heaven looks down: a glad and grateful earth looks up. Those writers who omit a sense of the unknown world in their books, (provided it be a kindly one) and of the great spirit of beauty and beneficence which causes all the lovely things we behold, might as well omit the sky in their landscapes, and go looking strait-forward or downward without the power of raising their eyes. To be always unconscious of what is invisible round about us, or remote, is in some sense, to be ignorant of what we see; for it prevents us from seeing the most delicate and suggestive part of its own beauty, and the innumerable images of fancy and delight which play round it.

As to flowers, which are endless in their suggestions, and about which we could hear endless talk from such writers as Mr. Howitt, we have often had a fancy respecting their origin, of which he has reminded us by speaking of them as among the "minor creations." They seem as if the younger portion of angels—

the childhood of heaven—had had a part of the creation of the world assigned to them, and that they made the flowers.—And yet who could so well know how to please them, as he who made themselves?

“The return of May again brings over us a living scene of the loveliness and delightfulness of flowers. Of all the minor creations of God, they seem to be most completely the effusions of his love, of beauty, grace, and joy. Of all the natural objects which surround us, they are the least connected with our absolute necessities. Vegetation might proceed, the earth might be clothed with a sober green; all the processes of fructification might be perfected with being attended by the glory with which the flower is crowned; but beauty and fragrance are poured abroad over the earth in blossoms of endless varieties, radiant evidences of the boundless benevolence of the Deity. They are made solely to gladden the heart of man, for a light to his eyes, for a living inspiration of grace to his spirit, for a perpetual admiration. And accordingly they seize on our affections the first moment that we behold them. With what eagerness do very infants grasp at flowers! As they become older, they would live for ever amongst them. They bound about in the flowery meadows like young fawns; they gather all they come near; they collect heaps; they sit among them, and sort them, and sing over them, and caress them, till they perish in their grasp.

This sweet May morning
The children are pulling
On every side,

In a thousand valleys far and wide
Fresh flowers.

Wordsworth.

We see them coming wearily into the towns and villages with their pinafores full, and with posies half as large as themselves. We trace them in shady lanes, in the grass of far-off fields, by the treasures they have gathered and left behind, lured on by others still brighter. As they grow up to maturity, they assume, in their eyes, new characters and beauties. Then they are strewn around them, the poetry of the earth. They become invested by a multitude of associations with innumerable spells of power over the human heart; they are to us memorials of the joys, sorrows, hopes, and triumphs of our forefathers; they are, to all nations, the emblems of youth in its loveliness and purity.

The ancient Greeks, whose souls pre-eminently sympathized with the spirit of grace and beauty in everything, were enthusiastic in their love, and lavish in their use of flowers. They scattered them in the porticoes of their temples, they were offered on the altars of some of their deities; they were strewed in the conqueror's path; on all occasions of festivity and rejoicing they were strewn about, or worn in garlands.

The guests at banquets were crowned with them.

Garlands of every green and every scent
From vales deflowered, or forest trees branch-rent,
In baskets of bright osiered gold were brought,

High as the handles heaped; to suit the thought
Of every guest, that each as he did please
Might fancy fit his brows, silk pillowed at his ease.

Keats.

The bowl was wreathed with them, and wherever they wished to throw beauty, and to express gladness, like sunshine they cast flowers. Something of the same spirit seems to have prevailed among the Hebrews. “Let us fill ourselves,” says Solomon, “with costly wine and ointments; and let no flower of the spring pass by us. Let us crown ourselves with rose-buds before they be withered.” But amongst that solemn and poetical people they were commonly regarded in another and higher sense; they were the favourite symbols of the beauty and the fragility of life. Man is compared to the flower of the field, and it is added, “the grass withereth, the flower fadeth.” But of all the poetry ever drawn from flowers, none is so beautiful, none is so sublime, none is so imbued with that very spirit in which they were made as that of Christ. “And why take ye thought for raiment? Consider the lilies of the field, how they grow; they toil not, neither do they spin; and yet, I say unto you, that even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven, shall he not much more clothe you; O ye of little faith!” The sentiment built upon this, entire dependance on the goodness of the Creator, is one of the lights of our existence, and could only have been uttered by Christ; but we have here also the expression of the very spirit of beauty in which flowers were created; a spirit so boundless and overflowing that it delights to enliven and adorn with these radiant creatures of sunshine the solitary places of the earth; to scatter them by myriads over the very desert “where no man is; on the wilderness where there is no man;” sending rain “to satisfy the desolate and waste ground, and to cause the bud of the tender herb to spring forth.”

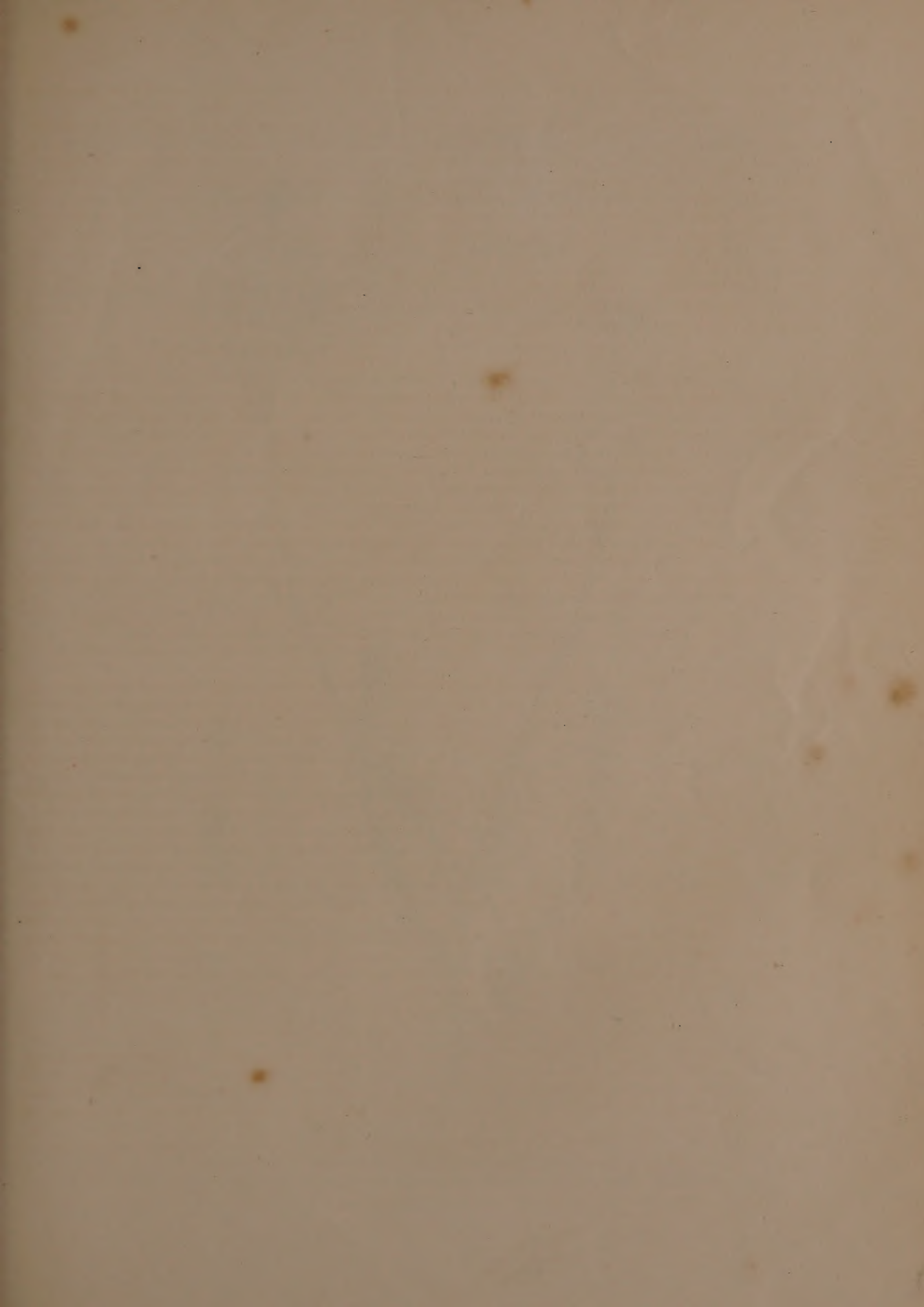
In our confined notions we are often led to wonder why

Full many a flower is born to blush unseen,

And waste its fragrance on the desert air?

why beauty, and flowers, and fruit, should be scattered so exuberantly where there are none to enjoy them. But the thoughts of the Almighty are not as our thoughts. He sees them; he doubtlessly delights to behold the beauty of his handiworks, and rejoices in that tide of glory which he has caused to flow wide through the universe. We know not either, what spiritual eyes besides may behold them; for pleasant is the belief that

Myriads of spiritual creatures walk the earth.





Sphenotoma gracilis.

SPHENOTOMA GRACILIS.—SLENDER SPHENOTOMA.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, EPACRIDEÆ.

1. The two Bractes, with a leaf at the base. 2. Calyx. 3. Tube of the Corolla spread open to show the insertion of the 5 Stamens.
4. The pubescent Ovarium, terminated by the Style and slightly two-lobed Stigma.

A small branching evergreen Heath-like Shrub, *branches* long and slender, erect or ascending, thickly clothed with leaves, the leafy stems hairy; the flowering ones smooth. *Leaves* recurved, cucullate at the base and sheathing the stem, leaving scars on it when they drop off: those on the main branches subulately lanceolate, taper-pointed, smooth on the upper side and hairy underneath, the margins fringed with long hairs: those on the flowering branches shorter, broader, and smooth, striate: on the flower-stem or peduncle they are lanceolate, taper-pointed, broad at the base, and pressed close to the stem. *Flowers* white, terminal, in a close ovate spike, very sweet-scented. *Bractes* two, at the base of the calyx, about half the length of the leaf that supports it; striate, and very hairy. *Calyx* of 5 sepals, that are lanceolate, acute, hairy, striate, the points marcescent. *Corolla* tubular; limb spreading, saucer-shaped, the edges a little crumpled; mouth nearly closed: tube slender, about the length of the calyx. *Stamens* 5, inserted in the tube, *filaments* short, attached to the back of the anthers. *Ovarium* pubescent, 5-celled. *Style* smooth, thickening upwards. *Stigma* capitate, slightly two-lobed.

It is a native of the South coast of New Holland, and is a valuable acquisition to our Greenhouses, both from its beauty and the delightful fragrance of its flowers. Mr. Brown included it in the genus DRACOPHYLLUM, but made it with two other nearly related species a distinct section or subgenus, to which he gave a proper name, which we have adopted; and as they are so very different both in habit and character from the true species of DRACOPHYLLUM, we have thought it best to give them as a distinct genus.

The present species requires to be potted in sandy peat soil, the pots to be well drained with potsherds that the wet may pass off readily, as nothing is more injurious to them than to be sodden with moisture: young cuttings, planted in pots of sand under a bellglass in Autumn, will strike root readily.*

The generic name is derived from σφηνωω, to connect or bind together, and τομος, a slice or section.

The general character of June, (says Mr. Howitt,) in the happiest seasons, is fine, clear, and glowing, without reaching the intense heats of July. Its commencement is the only period of the year in which we could possibly forget that we are in a world of perpetual change and decay. The earth is covered with flowers, and the air is saturated with their odours. It is true that many have vanished from our path, but they have slid away so quietly, and their places have been occupied by so many fragrant and beautiful successors, that we have scarcely been sensible of their departure. Every thing is full of life, greenness, and vigour. Families of young birds are abroad, and giving their parents a busy life of it, till they can peck for themselves. Rooks have deserted their rookery, and are feeding their vociferous young in every pasture and under every green tree. The swallow and swift are careering in the clear skies, and

Ten thousand insects in the air abound
Flitting on glancing wings that yield a summer sound.

Wiffen.

The flower-garden is in the height of its splendour. Roses of almost innumerable species,—I have counted no less than fourteen in a cottage garden,—lillies, jasmins, speedwells, rockets, stocks, lupines, geraniums, pinks, poppies, valerians red and blue, mignonette, &c., and the glowing rhododendron abound.

It is the very carnival of Nature, and she is prodigal of her luxuries. It is luxury to walk abroad, indulging every sense with sweetness, loveliness, and harmony. It is luxury to stand beneath the forest-side, when all is still and basking at noon; and to see the landscape suddenly dark; the black and tumultuous clouds to assemble as at a signal; to hear the awful thunder crash upon the listening ear; and then, to mark the glorious bow rise on the lurid rear of the tempest, the sun laugh jocundly, and

Every bathed leaf and blossom fair
Pour out its soul to the delicious air.

It is luxury to haunt the gardens of old-fashioned houses in the morning, when the bees are flitting forth with a rejoicing hum; or at eve, when the honey-suckle and the sweet-briar mingle their spirit

* Flora Australasica.

with the breeze. It is luxury to plunge into the cool river. To steal away into a quiet valley by a winding stream, buried, completely buried, in fresh grass; the foam-like flowers of the meadow-sweet, the crimson loose-strife, and the large blue geranium nodding beside us; the dragon-fly, the ephemera, and the king-fisher glancing to and fro; the trees above casting their flickering shadows on the stream; and one of our ten thousand volumes of our delightful literature in our pockets. What luxurious images would there float through the mind! It is in the flowery lap of June that we can best climb

Up to the sunshine of encumbered ease.

How delicious too are the evenings become. The frosts and damps of spring are past; the earth is dry, the night air is balmy and refreshing; the glow-worm has lit her lamp: the bat is circling about; the fragrant breath of flowers steals into our houses; and the moth flutters against the darkening pane. Go forth when the business of the day is over, thou who art pent in city toils, and stray through the newly-shot corn along the grassy and hay-scented fields; linger beside the solitary woodland; the gale of heaven is stirring its mighty and umbrageous branches; the wild rose, with its flowers of most delicate odour, and of every tint from the deepest red to the purest pearl; the wreathed and luscious honey suckle, and the verdurous, snowy-flowered elder embellish every way-side, or light up the most shadowy region of the wood. Field peas and beans in full flower, add their spicy aroma; the red clover is at once splendid, and profused of its honied breath. The young corn is bursting into ear; the awned heads of rye, wheat and barley, and the nodding panicles of oats shoot from their green and glaucous stems, in broad, level, and waving expanses of present beauty and future promise. The very waters are strewn with flowers; the buck-bean, the water-violet, the elegant flowering-rush, and the queen of the waters, the pure and the splendid white lily, invest every stream and lonely moor with grace. The mavis and the merle, those worthy favourites of the olden bards, and the woodlark, fill the solitude with their elegant evening songs.

Over its own sweet voice the stock-dove broods;

and the cuckoo pours its mellowest note from some region of twilight shadow. The Sunsets of this month are transcendently glorious, the mighty luminary goes down pavilioned amidst clouds of every hue: the splendour of burnished gold, the deepest mazarine blue fading away into the deepest heavens to the palest azure, and an ocean of purple is flung over the twilight woods, or the far stretching and lonely horizon. The heart of the spectator is touched; it is melted and wrapt into dreams of past and present, pure, elevated, and tinged with a poetic tenderness.

* * * * *

SHEEP-SHEARING, began last month, is generally completed this. It is one of the most picturesque operations of rural life, and from the most ancient times, it has been regarded as a scene of gladness and joy.

Like most of our old festivities, however, this has for late years declined, yet two instances in which it has been attempted to keep it alive, on a noble scale, worthy of a country so renowned for its flocks and its fleeces, will occur to the reader,—those of Holkham and Woburn; and in the wilds of Scotland, and the more rural parts of England, the ancient glory of sheep-shearing has not entirely departed. And, indeed, its picturesqueness can never depart, however its jollity may. The sheep washing, however, which precedes the shearing, has more of rural beauty about it. As we stroll over some sunny heath, or descend into some sylvan valley in this sweet month, we are apt to come upon such scenes. We hear afar off the bleating of flocks; as we approach some clear stream, we behold the sheep penned on its banks; in mid stream stand sturdy hinds ready to receive them as they are plunged in, one by one, and after squeezing their saturated fleeces well between their hands, and giving them one good submersion, they guide them to the opposite bank. The clear running waters, the quiet fields, the whispering fresh boughs that thicken around, and the poor dripping creatures themselves, that, after giving themselves a staggering shake, go off gladly to their pasture, form to the eye an animated and splendid *tout ensemble*.



Daucus Carota

DAUCUS CAROTA.—WILD CARROT.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Fig. (a) a floret somewhat magnified, to show the stamens, and a single ray of the umbel, with the involucre; (b) an achenium.

In its wild state, the Carrot is a common weed in this country, growing by road sides, especially in a gravelly or chalky soil; and is known by the name of *Bird's-nest*, from the appearance of the umbels as they approach maturity. It is a biennial plant, flowering in June and July, and ripening its seeds in September.

The root of the Wild Carrot is slender, dry, somewhat woody, of a yellowish colour, and aromatic. The root of the Garden Carrot, which is reckoned only a variety, is succulent, commonly of a yellow or an orange colour, and is universally known as an article of domestic economy. The stem of the wild sort is about two feet high, erect, furrowed, branched, and hairy. The leaves are alternate, on broad footstalks, bipinnate, of a dark green colour, and hairy, especially beneath. The umbels, which terminate the long, leafless branches, are solitary, large, and, as they approach maturity, the external rays become incurved, which renders the inner surface of the umbel concave like a bird's-nest. Both umbels are many-rayed, and consist of flowers that are small, and generally white, except the abortive ones in the centre of the umbel, where they have a purple or reddish hue. The general involucre is composed of many-winged, or pinnatifid leaves, shorter than the umbel; the partial ones undivided, or sometimes 3-cleft. The petals are unequal, radiate, and obcordate. The achenia are in pairs, ovate, and rough, with rigid bristles.

It is generally allowed that the cultivated Carrot is a variety of the wild; but although Miller endeavoured to improve the latter kind, by growing it in different soils, he was never able to effect his purpose: it is therefore probable that we are indebted for our delicious vegetable to an accidental growth from seed, or to a foreign supply; Carrots having been used in the reign of Elizabeth, at which time the utility of gardens was just beginning to be felt, and their stock supplied from abroad. They are cultivated in the Mahratta and Mysore countries, where they are very fine, and much eaten by the inhabitants.

CULTURE.—“Several varieties,” says Mr. Patrick Neill, “are cultivated, particularly the orange carrot, with a large long root of an orange-yellow colour; the early horn and the late horn carrot, of both which the roots are short and comparatively small; and the red or field carrot, which acquires a large size.

“Carrots are sown at two or three different seasons. The first sowing is made as early perhaps as new year's day, or at any rate before the first of February, on a warm border or in front of a hothouse. Some employ a gentle hotbed for this first crop; while others only hoop over the border, and cover it with mats during frost. The main crop of Carrots is put in in March or April; and in June or July a small bed is sown to afford young carrots in the autumn months. In some places a sowing is made a month later, to remain over winter, and afford young carrots in the following spring. These, however, often prove stringy, but they are useful in flavouring soups. In light early soils, it is better that the principal crop should not be sown sooner than the end of April or beginning of May; for in this way the attacks of many larvæ are avoided. For the early crops the horn carrot is best; for the principal crops, the orange variety is preferred, but the red is also much cultivated.

“The fruits having many forked hairs on their borders, by which they adhere together, are rubbed between the hands with some dry sand, so as to separate them. On account of their lightness, a calm day must be chosen for sowing; and the seeds should be trodden in before raking. They are sown either broadcast, or in drills a foot apart. When the plants come up, several successive hoeings are given; at first with a three-inch, and latterly with a six-inch hoe. The plants are thinned out, either by drawing young carrots for use, or by hoeing, till they stand eight or ten inches from each other, if sown by broad-cast, or six or seven inches in line. The hoeing is either performed only in showery weather, or a watering is generally given after the operation, in order to settle the earth about the roots of the plants left.

“Carrots thrive best in light ground, with a mixture of sand. It should be delved very deep, or even trenched, and at the same time well broken with the spade. If the soil be naturally shallow, the late horn carrot is to be preferred to the orange or red. When manure is added to carrot ground it should be buried deep, so that the roots may not reach it else they are apt to become forked and diseased. In general it is best to make carrots the second crop after manuring. From the Scottish Horticultural Memoirs, however

(vol. i. p. 129,) we learn that pigeons' dung, one of the hottest manures, far from injuring carrots, promotes their health, by preventing the attacks of various larvæ.

"Carrots are taken up at the approach of winter, cleaned and stored among sand. They may be built very firm by laying them heads and tails alternately, and packing with sand. In this way, if frost be excluded from the storehouse, they keep perfectly well till March or April of the following year. Some persons insist that the tops should be entirely cut off at the time of storing; while others wish to preserve the capability of vegetation, though certainly not to encourage the tendency to grow.

From old Parkinson we learn, that carrot leaves were in his days thought so ornamental that ladies wore them in place of feathers. It must be confessed that the leaves are beautiful. If during winter a large root be cut over about three or four inches from the top, and be placed in a shallow vessel with water, over the chimney-piece, young and delicate leaves will unfold themselves all around, producing a very pretty appearance enhanced no doubt by the general deadness of that season of the year."

QUALITIES AND CHEMICAL PROPERTIES.—The seeds of the wild carrot are aromatic, both in taste and odour. Water digested on them becomes impregnated with the latter quality, but it extracts little of their taste. They yield a yellowish essential oil, and give out all their virtues to spirit. M. Braconot has discovered a new acid, named *pectic acid*, which is universally diffused in all vegetables. The following is the method of preparing pectic acid from *carrots*:—The roots being well washed, are reduced to a pulp by means of a grater. The juice is pressed out, and the grounds repeatedly washed with filtered rain-water, till the water passes out colourless. With these grounds, and a certain quantity of water, a semiliquid pap is made, into which is stirred a solution of potash or soda of commerce, rendered caustic, in quantity sufficient to maintain in the liquor, till the end of the operation, a slight excess of alkali, perceptible to the taste. The mixture is immediately exposed to heat, and made to boil, till, on taking out with a tube a portion of the thick resulting liquor, it coagulates entirely into a jelly with an acid. The boiling liquor is then strained through linen. The mass is washed with rain-water, containing no sulphate of lime, and the liquors, which are thick and mucilaginous, are added together, and will form into a jelly, if allowed to cool. The solution of this pectate is decomposed with a little muriate of lime, diluted with a great deal of water. By this means, we obtain an extremely abundant transparent jelly of insoluble pectate of lime, which it is easy to wash well upon a linen cloth. This combination is boiled for some minutes with water, acidulated by a little muriatic acid, which dissolves the lime with the starch. The whole is afterwards thrown upon a linen cloth, and the pectic acid is obtained, and may be washed with the greatest facility with pure water.

The proportions of the ingredients are 50 parts of carrots, 300 parts of water, and one part of potass. Pectic acid in jelly liquifies with extreme facility on the affusion of a few drops of ammonia. The solution evaporated to dryness, gives a residue, a sub-pectate of ammonia, which swells up extremely in distilled water, dissolves in it, and thickens a great quantity of that liquid.

It is remarkable how small a quantity of this salt can communicate to great quantities of sugared water the property of gelatinizing. M. Braconot dissolved, in a quantity of warm water, one part of this salt, produced from the root of the turnip. He dissolved some sugar in the liquor, and then added an infinitely small quantity of the acid; a moment after, the whole had formed into a mass of trembling jelly, of the weight of three hundred parts. The inventor has prepared, by these means, aromatized jellies, perfectly transparent and colourless, very agreeable to the taste and to the eye. This acid is also obtained from fruits, and may be used in the preparation of jellies. When it is wished, for example, to make a lemon jelly, one part of the acid in jelly, well drained, is mixed with three parts of distilled water; and to these, a small quantity of a dilute solution of pure potash and soda is added, till the acid is dissolved and saturated. This solution is exposed to heat, and three parts of sugar are dissolved in it, a small portion of sugar being previously rubbed on the rind of a lemon. A small quantity of very diluted muriatic or sulphuric acid is added to the liquor to decompose the pectate; the mixture being agitated acquires consistency, and forms into a jelly a short time afterward.

One of the most valuable properties that the author has discovered in the soluble pectates is, that they may be considered as the most certain antidotes in cases of poisoning by the metallic salts, with the exception of corrosive sublimate, nitrate of silver, and emetic tartar.

MEDICAL PROPERTIES AND USES.—The seeds of Carrot are carminative and somewhat diuretic; and by Schroder, and others, have been recommended for flatulent cholice, hiccough, dysentery, chronic coughs, &c. They appear to be of little use, excepting as correctors of flatulency. Dr. Ainslie, in his elaborate work, informs us, that the Arabians place the root of the Carrot amongst their *Mobehyet*, *Aphrodisiaca*, a proof that they never could have supposed them to be indigestible; which they certainly are not, if they be young and well boiled. Bergius informs us that the expressed and inspissated juice is sweet, approaching to the nature of honey, but not crystallizable: and Marcgraf recommends recent roots to be cut, well washed, and beaten into a pulp; the juice of which is to be expressed through a sieve, and inspissated to the consistence of honey, when it may be used at table instead of sugar, and will be found a useful remedy for infantile and consumptive coughs, and for worms. The root, beaten into a pulp, forms an excellent antiseptic poultice for cancerous and ill-conditioned sores, especially when combined with hemlock. The dose of the bruised seed is from ʒj to ʒj. or more.



Boronia serrulata.

BORONIA SERRULATA.—ROSE-COLOURED BORONIA.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, RUTACEÆ.—THE RUE TRIBE.

1. Calyx spread open. 2. The eight Stamens, every other one shortest, with smaller anthers. 3. One of the Stamens, detached, the filaments bearded at the base, and terminated in a tufted head beyond the anther. 4. Ovarium, terminated by a short 4-furrowed Style, and a large 4-lobed capitate Stigma.

A dwarf bushy evergreen Shrub: *branches* smooth, rugged where the leaves have fallen, erect or slightly spreading. *Leaves* distichous, trapeziform, or nearly elliptical, acute slightly twisted, attenuated to the base, smooth, but dotted with numerous small dots, glandularly serrulate on the margins. *Petioles* very short, setting close to the stem, reddish. *Flowers* terminal, crowded, from 4 to 12, of a bright rose colour, very fragrant. *Bractes* at the base of the peduncles, lanceolate, acute, of a membranaceous texture. *Calyx* 4-cleft, persistent, the laciniae lanceolate, acute, with membranaceous margins, spreading. *Petals* 4, ovate, acute, slightly mucronate at the points, about half an inch in length, persistent. *Stamens* 8, inserted in the receptacle, all bearing anthers, every other one longest, opposite to the sepal, and bearing the largest anther, which contains the greatest quantity of pollen, but the whole are fertile; *filaments* glandularly hairy, erect, the points curved inwards, terminated in a broad tufted head beyond the anthers, which are two-lobed, and surround the style: *pollen* pale yellow. *Ovarium* 4-lobed, smooth and glossy. *Style* 1, short, 4-furrowed, when full grown quite hid by the large 4-lobed capitate *Stigma*.

The present beautiful plant is deserving a place in every collection, both for its beauty and the delightful fragrance of its flowers, which has obtained for it the name of the native Rose in New South Wales; it may certainly be considered as one of the most ornamental plants of the Greenhouse, thriving well in a light turfy peat soil, and the pots to be well drained with potsherds broken small, that the wet may pass off readily; but it is rather more tender than some of the plants from New South Wales, requiring the protection of a good Greenhouse in Winter. Young cuttings of it, planted in sand, under bell-glasses, in Summer, placed in a warm but shady situation, and to be kept regularly moist, will be rooted by the following Spring, when they must be potted singly into small pots, and all the sand must be shook clean from their roots that they might not canker; they should then be placed in a close frame for a few days, until they have made fresh roots, and must be shaded from the sun, when they must be hardened to the air by degrees; evening is the best time for giving air at first, as if given in the day time, when the sun shines, they will be liable to wither with the heat.

The genus was named by Sir J. E. Smith, in memory of Francis Borone, a native of Milan, who unfortunately died at an early age, by an accidental fall at Athens, while attending Professor Sibthorp on a botanical tour to that country.*

A popular author says, "May we exhort such of our readers as have no pictures hanging in their room to put one up immediately? we mean in their principal sitting-room;—in all their rooms, if possible, but, at all events, in that one. No matter how costly, or the reverse, provided they *see something in it*, and it gives them a profitable or pleasant thought. Some may allege that they have "no taste for pictures;" but they have a taste for objects to be found in pictures,—for trees, for landscapes, for human beauty, for scenes of life; or, if not for all these, yet surely for some one of them; and it is highly useful for the human mind to give itself helps towards taking an interest in things apart from its immediate cares or desires. They serve to refresh us for their better conquest or endurance; to render sorrow unselfish; to remind us that we ourselves, or our own personal wishes, are not the only objects in the world; to instruct and elevate us, and put us in a fairer way of realizing the good opinions which we would all fain entertain of ourselves, and in some measure do; to make us compare notes with other individuals, and with nature at large, and correct our infirmities at their mirror by modesty and reflection; in short, even the admiration of a picture is a kind of additional tie on our consciences, and rebinding of us to the greatness and goodness of nature.

Mr. Hazlitt has said somewhere, of the portrait of a beautiful female with a noble countenance, that it seems as if an unhandsome action would be impossible in its presence. It is not so much for restraint's sake, as for the sake of diffusiveness of heart, or the going out of ourselves, that we would recommend pictures; but, among other advantages, this also, of reminding us of our duties, would doubtless be one; and

* Flora Australasica.

if reminded with charity, the effect, though perhaps small in most instances, would still be something. We have read of a Catholic money-lender, who, when he was going to cheat a customer, always drew a veil over the portrait of his favourite Saint. Here was a favourite vice, far more influential than the favourite Saint; and yet we are of opinion that the money-lender was better for the Saint than he would have been without him. It left him faith in something; he was better for it in the intervals; he would have treated his daughter the better for it, or his servant, or his dog. There was a bit of heaven in his room,—a sun-beam to shine into a corner of his heart,—however he may have shut the window against it, when heaven was not to look on.

The companionship of anything greater or better than ourselves, must do us good, unless we are destitute of all modesty or patience. And a picture is a companion, and the next thing to the presence of what it represents. We may live in the thick of a city, for instance, and can seldom go out, and “feed” ourselves

With pleasure of the breathing fields;

but we can put up a picture of the fields before us, and, as we get used to it, we shall find it the next thing to seeing the fields at a distance. For every picture is a kind of window, which supplies us with a fine sight; and many a thick, unpierced wall thus lets us into the studies of the greatest men, and the most beautiful scenes of nature. By living with pictures we learn to “read” them,—to see into every nook and corner of a landscape, and every feature of the mind; and it is impossible to be in the habit of these perusals, or even of being vaguely conscious of the presence of the good and beautiful, and considering them as belonging to us, or forming a part of our common-places, without being, at the very least, less subject to the disadvantages arising from having no such thoughts at all.

And it is so easy to square the picture to one's aspirations, or professions, or the powers of one's pocket. For, as to resolving to have no picture at all in one's room, unless we could have it costly, and finely painted, and finely framed, that would be a mistake so vulgar, that we trust none of our readers could fall into it. The greatest knave or simpleton in England, provided he is rich, can procure one of the finest paintings in the world to-morrow, and know nothing about it when he has got it; but to feel the beauties of a work of art, or to be capable of being led to feel them, is a gift which often falls to the lot of the poorest; and this is what Raphael or Titian desired in those who looked at their pictures. All the rest is taking the clothes for the man. Now it so happens, that the cheapest engravings, though they cannot come up to the merits of the originals, often contain no mean portion or shadow of them; and when we speak of putting pictures up in a room, we use the word “picture” in the child's sense, meaning any kind of graphic representation, oil, water-colour, copper-plate, drawing, or wood-cut. And any one of these is worth putting up in your room, provided you have mind enough to get a pleasure from it. Even a frame is not necessary, if you cannot afford it. Better put up a rough, varnished engraving, than none at all,—or pin, or stick up any engraving whatsoever, at the hazard of its growing never so dirty. You will keep it as clean as you can, and for as long a time: and as for the rest, it is better to have a good memorandum before you, and get a fresh one when you are able, than to have none at all, or even to keep it clean in a portfolio. How should you like to keep your own heart in a portfolio, or lock your friend up in another room? We are no friends to portfolios, except where they contain more prints than can be hung up. The more, in that case, the better.

Our readers have seen in all parts of the country, over the doors of public-houses, “Perkins and Co.'s Entire.” This Perkins, who died wealthy, a few years ago, was not a mere brewer or rich man. He had been clerk to Thrale, the friend of Dr. Johnson; and, during his clerkship, the Doctor happening to go into his counting-house, saw a portrait of himself (Johnson) hanging up in it. “How is this sir?” inquired Johnson. “Sir,” said Perkins, “I was resolved that my room should have had one great man in it.” “A very pretty compliment,” returned the gratified moralist, “and I believe you mean it sincerely.”

Mr. Perkins did not thrive the worse for having the portrait of Johnson in his counting-house. People are in general quite enough inclined to look after the interests of “number one;” but they make a poor business of it, rich as they may become, unless they include a power of forgetting it in behalf of number two; that is to say, of some one person, or thing, besides themselves, able to divert them from mere self-seeking. It is not uncommon to see one solitary portrait in a lawyer's office, and that portrait, a lawyer's, generally some judge. It is better than none. Anything is better than the poor, small unit of a man's selfish self, even if it be but the next thing to it. And there is the cost of the engraving and frame. Sometimes there is more; for these professional prints, especially when alone, are meant to imply, that the possessor is a shrewd, industrious, proper lawyer, who sticks to his calling, and wastes his time in “no nonsense;” and this ostentation of business is in some instances a cover for idleness or disgust, or a blind for a father or rich uncle. Now it would be better, we think, to have two pictures instead of one,—the judge's by all means, for the professional part of the gentleman's soul,—and some one other picture, to show his client that he is a man as well as a lawyer, and has an eye to the world outside of him, as well as to his own; for as men come from that world to consult him, and generally think their cases just in the eyes of common sense as well as law, they like to see that he has some sympathies as well as cunning.



Bryonia dioica.

BRYONIA DIOICA.—RED-BERRIED BRYONY.

CLASS XXI. MONŒCIA.—ORDER V. PENTANDRIA.

NATURAL ORDER, CUCURBITACEÆ.—THE GOURD TRIBE.

Fig. (a) represents the corolla spread open to show the anthers; (b) the germen, with its styles and stigmas; (c) the ripe fruit.

THIS is an indigenous plant, with annual stems and a perennial root; very common in dry hedges, and flowering from May to September.

From a large, fleshy root, which is often as thick as a man's thigh, of a white colour, and subdivided below, this species of bryony rises with several slender, herbaceous, annual, rough, leafy stems, somewhat branched, and climbing by means of tendrils to the height of several feet. The leaves are large, with five acute lobes, hairy on both sides, rough all over with minute callous tubercles, and disposed alternately on strong hairy footstalks. The flowers are dioicous, or male and female on different plants; of yellowish colour, and spring in paniculiform racemes from the axillæ of the leaves. Miller observed that, after the first two or three years, old roots sometimes produced both fertile and barren blossoms on the same plant, "as is proper to all the other known species of this genus." The calyx of the staminate flower is catasepalous, bell-shaped, and deeply divided into five narrow, pointed, segments; the corolla is also bell-shaped, and divided into five deep segments which are ovate and spreading. The filaments are three; short, thick, and furnished with five anthers, of which four are in pairs, united on two of the filaments, and the fifth solitary on the third filament. The calyx and corolla of the pistilline flowers are superior, and resemble those of the staminate ones, but are smaller. The germen is inferior, surmounted by a short, strong, erect, 3-cleft style, with large, cloven, triangular, spreading stigmas. The fruit is a smooth, globular, red berry, about the size of a common garden-pea, containing five or six roundish seeds, in pairs, attached to the rind. "The true *Bryonia alba* of Linnæus, found on the continent, has black fruit, being called *alba* from its white root, in contradistinction to *Tamus*, the black-rooted Bryony."

QUALITIES AND CHEMICAL PROPERTIES.—The fresh root, which is spongy, has an extremely disagreeable odour, and a particularly nauseous taste, both which appear to depend principally upon an acrid principle that can be so dissipated by repeated washings with water, as to leave a fecula similar to that yielded by the potatoe; and which, in the scarcity which followed the French revolution, was resorted to as food, and found to be very nutritious. Vauquelin has lately analyzed the root. By maceration in water, and subsequent pressure in a linen cloth, the starch was separated, and obtained in a state of purity. The bitter substance was soluble both in alcohol and water, and appeared to possess the properties of pure bitter principle. It was found also to contain a considerable portion of gum; a substance which is precipitated by infusion of galls, and which Vauquelin denominates vegeto-animal matter, some woody fibres, a small portion of sugar, and a quantity of super-malate of lime, and phosphate of lime.

POISONOUS EFFECTS.—Given in over-doses, the root of Bryony exerts a powerful influence on the lining membrane of the stomach and bowels; producing all the effects of an acrid cathartic, such as sickness, intense pain, and inflammation and all its consequences. Orfila infers from numerous experiments—

1st.—That the bryony root acts upon men in the same manner as upon dogs.

2nd.—That its effects may depend on the inflammation it produces, and the sympathetic irritation of the nervous system, rather than on its absorption.

3rd.—That its deleterious properties reside especially in the portion which is soluble in water.

TREATMENT.—First evacuate the stomach by ipecacuanha powder, suspended in warm water. After the stomach has been evacuated, give repeated doses of the sulphate of magnesia, dissolved in almond emulsion, which will not only operate on the bowels, but serve to defend the mucous membrane of the in-

testinal canal from the acrid effects of the poison. Should inflammatory symptoms supervene, the usual antiphlogistic treatment is to be practised.

MEDICAL PROPERTIES AND USES.—This root was formerly much extolled as a cathartic and diuretic. Its medical properties evidently depend upon its acrid juice, which is most powerful in the autumn and spring; the root must therefore be procured at one of these periods, and to insure its uniform operation, the latter period should always be chosen. The root should be cut in thin slices and dried in the sun, or in a warm room; by which means some of the acrid qualities are dissipated: and then it is a remedy of no little value in dropsical cases, as can be testified from extensive experience. The infusion is the best mode of administration, and this may be made with half an ounce of the dried root in a pint of boiling water; to which may be added one ounce of spirit of Juniper. Of this mixture a wine-glassful should be taken every four hours. Like all other irritating purgatives, it occasionally acts too powerfully; when its use must be suspended, and cordials or opiates resorted to. It has been much commended for its effects in mania, and amongst others by Sydenham. Dioscorides and Pliny, were in the habit of giving an ounce of the juice for epilepsy: some of the moderns have done the same; and to procure it, it is customary to cut off the top, and scoop a hole in the root; which in the course of a few hours will be filled. Matthiolus recommends it for hysteria. Many accounts partaking of the marvellous, are extant of its virtues in expelling worms and some imaginary parasites of the abdomen; and it was once much celebrated as an emmenagogue. Withering says, that a decoction made with a pound of the fresh root, is the best physic for horned cattle; and it is a common practice in Norfolk, to give small quantities to horses in their corn, to render their coats glossy and fine. The recent root is capable of blistering the skin, and has been found useful, if externally applied, to rheumatic affections, and also for removing extravasated blood. "In hospitals," says Dr. R. Pearson, "it would very well supply the place of jalap, and thus lead to considerable savings."

The *dose* of the powder is from half, to one dram.

A gentleman of good estate could not contrive how to waste his hours agreeably. He had no relish for the proper works of life, nor any taste for the improvements of the mind; he spent generally ten hours of the four-and-twenty in bed; he dozed away two or three more on his couch, and as many more were dissolved in good liquor every evening, if he met with company of his own humor. Thus he made a shift to wear off ten years of his life since the paternal estate fell into his hands. One evening, as he was musing alone, his thoughts happened to take a most unusual turn, for they cast a glance backward, and he began to reflect on his manner of life. He set himself to compute what he had consumed since he came of age.

"About a dozen feathered creatures, small and great, have, one week with another," said he, "given up their lives to prolong mine; which, in ten years, amounts to at least six thousand. Fifty sheep have been sacrificed in a year, with half a hecatomb of black cattle, that I might have the choicest parts offered weekly upon my table. Thus a thousand beasts, out of the flock and herd, have been slain in ten years time to feed me, besides what the forest has supplied me with. Many hundreds of fishes have, in all their varieties, been robbed of life for my repast—and of the smallest fry some thousands. A measure of corn would hardly suffice me with fine flour for a month's provision, and this arises to above six score bushels; and many hogsheads of wine, and other liquors, have passed through this body of mine—this wretched strainer of meat and drink! And what have I done, all this time, for God or man? What a vast profusion of good things upon a useless life and a worthless liver! There is not the meanest creature among all those which I have devoured, but what hath answered the end of its creation better than I. It was made to support human nature, and it hath done so. Every crab and oyster I have eaten, and every grain of corn I have devoured, hath filled up its place in the rank of beings, with more propriety than I have. Oh! shameful waste of life and time." He carried on his moral reflections with so just and severe a force of reason as constrained him to change his whole course of life, to break off his follies at once, and to apply himself to gain useful knowledge, when he was more than thirty years of age. The world were amazed at the mighty change, and beheld him as a wonder of reformation; while he himself confessed and adored the divine power and mercy that had transformed him from a brute to a man. He lived many following years with the character of a worthy man and an excellent Christian. He died with a peaceful conscience, and the tears of his country were dropped upon his tomb. But this was a single instance, and we may almost venture to write "miracle" upon it. Are there not numbers, in this degenerate age, whose lives have run to utter waste, without the least tendency to usefulness?



Epilobium Angustifolium.

EPILOBIUM ANGUSTISSIUM.—NARROWEST-LEAVED WILLOW-HERB.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ONAGRARIA.—THE EVENING PRIMROSE TRIBE.

Root creeping; stems erect, nearly simple; leaves nearly sessile, lanceolate, undulated, glabrous, with the veins pellucid; flowers disposed in spicate racemes, bracteolate, style reflexed, pelose at the base, shorter than the stamens. Natives of Europe and Siberia, in mountain woods and meadows. In Britain in moist shady places, particularly in the north of England and south of Scotland. It flowers in July and August.

The *Onagraceæ* are all innocuous plants, but they are more celebrated for their beauty than for their medical or economical importance. Many of them, such as the *Fuchsia*, *Epitobium*, *Gaura*, *Clarckia*, and *Lopezia*, are highly ornamental plants. *Montinia acris*, which is remarkable for having albuminous seeds, likewise deviates from the other genera in having an acrid fruit. Of the *Epilobia* or willow herbs, the *E.* or *Chamænerion angustifolium* is said to produce a kind of intoxication, or to stupify those who drink a decoction of its stems and leaves; and hence perhaps the reason why it is added by the Kamtschatdales to "enrich the spirit" they prepare from the cow-parsnip. The pith when dried becomes sweet, and the same people brew from it a kind of ale, and also procure their vinegar. The young shoots of this and other species are eatable when dressed in the same manner as asparagus. The *Epilobia* are valuable plants for shrubberies, as they will thrive under the drip of trees, and by their brilliant flowers enliven and form an admirable contrast with the more sombre foliage of shady walks. They are also very tolerant of smoke, and thrive well in large towns. The roots of the *Oenothera*, especially *O. biennis*, are also esculent. The plant was once cultivated for the sake of its tubers, which might in some measure have stood in the stead of the potato, had they not been superseded by the introduction of the latter most valuable plant. The roots of this *Oenothera* were formerly eaten after dinner, as olives now are, being esteemed incentives to wine-drinking; and hence the generic name was changed from *Onagra*, the ass-food, to *Oenothera*, the wine-trap.

The leaves of *Jussiaea Peruviana* are esteemed in America for making good emollient poultices.

A delightful writer says, "Among other comparative injuries which we are accustomed to do to the characters of things animate and inanimate, in order to gratify our human vanity,—is a habit in which some persons indulge themselves of calling insipid things and persons sticks. Such and such a one is said to write a stick; and such another is himself called a stick;—a poor stick, a mere stick, a stick of a fellow.

We protest against this injustice done to those genteel, jaunty, useful, and flourishing sons of a good old stock. Take, for instance, a common cherry stick, which is one of the favourite sort. In the first place it is a very pleasant substance to look at, the grain running round it in glossy and shadowy rings. Then it is of primæval origin, handed down from scion to scion through the most flourishing of genealogical trees. In the third place, it is of Eastern origin; of a stock, which it is possible may have furnished Haroun Al Raschid with a djereed, or Mahomet with a camels-stick, or Xenophon in his famous retreat with fences, or Xerxes with tentpins, or Alexander with a javelin, or Sardanapalus with tarts, or Zoroaster with mathematical instruments. Lastly, how do you know but that you may have eaten cherries off this very stick; for it was once with sap, alive and rustling with foliage, and powdered with blossoms, and red and laughing with fruit. Where the leathern tassel now hangs, may have dangled a bunch of berries; and instead of the brass ferrule poking in the mud, the tip was growing into the air with its youngest green.

The use of sticks in general is of the very greatest antiquity. It is impossible to conceive a state of society, in which boughs should not be plucked from trees for some purpose of utility or amusement. Savages use clubs, hunters require lances, and shepherds their crooks. Then came the sceptre, which is originally nothing but a staff, or a lance, or a crook, distinguished from others. The Greek word for sceptre signifies also a walking-stick. A mace, however plumped up and disguised with gilding and a heavy crown, is only the same thing in the hands of an inferior ruler; and so are all other sticks used in office, from the baton of the Grand Constable of France down to the tipstaff of a constable in Bow street. As the shepherd's dog is the origin of the gentlest pet that lies on a hearth-cushion and of the most pompous barker that jumps about a pair of greys, so the merest stick used by a modern Arcadian, when he his driving his flock to

Leadenhall market with a piece of candle in his hat and No. 554 on his arm, is the first great parent and original of all authoritative staves from the beadle's cane wherewith he terrifies little-boys who eat bull's eyes in church-time, up to the silver mace of the verger; the wands of parishes and governors; the tasseled staff, wherewith the Band-Major so loftily picks out his measured way before the musicians, and which he holds up when they are to cease; the White Staff of the Lord Treasurer; the court-officer emphatically called the Gold Stick: The Bishop's Crozier (*Pedum Episcopale*) whereby he is supposed to pull back the feet of his straying flock; and the royal and imperial sceptre aforesaid, whose holders were formerly called shepherds of the people. The Vaulting Staff, a luxurious instrument of exercise, must have been used in times immemorial for passing streams and rough ground with. It is the ancestor of the staff with which Pilgrims travelled. The Staff and Quarter-Staff of the country Robin Hoods is a remnant of the war-club. So is the Irish Shillelah, which a friend has well defined to be "a stick with two butt-ends." The originals of all these, that are not extant in our own country, may still be seen wherever there are nations uncivilized.

But sticks have been great favourites with civilized as well as uncivilized nations; only the former have used them more for help than ornament. The Greeks were a sceptropherous people. Homer probably used a walking-stick, because he was blind; but we have it on authority that Socrates did. On his first meeting with Xenophon, which was in a narrow passage, he barred up the way with his stick, and asked him in his good-natured manner, where provisions were to be had. Xenophon having told him, he asked again, if he knew where virtue and wisdom were to be had; this reducing the young man to a non-plus, he said, "Follow me, and learn;" which Xenophon did, and became the great man we have all heard of. The fatherly story of Agesilaus, who was caught amusing his little boy with riding on a stick, and asked his visitor whether he was a father, is too well known for repetition.

There is an illustrious anecdote connected with our subject in Roman history. The highest compliment, which his countrymen thought they could pay to the first Scipio, was to call him a walking-stick; for such is the signification of his name. It was given him for the filial zeal with which he used to help his old father about, serving his decrepid age instead of a staff. But the Romans were not remarkable for sentiment. What we hear in general of their sticks, is the thumpings which servants get in their plays; and above all, the famous rods which the lictors carried, and which being actual sticks, must have inflicted horrible dull bruises and malignant stripes. They were pretty things, it must be confessed, to carry before the chief magistrate; just as if the King or the Lord Chancellor were to be preceded by a cat-o'-nine tails.

Sticks are not at all in such request with modern times as they were. Formerly, we suspect, most of the poorer ranks in England used to carry them, both on account of the prevalence of manly sports, and for security in travelling: for before the invention of posts and railroads, a trip to Marlowe or St. Albans was a thing to make a man write his will. As they came to be ornamented, fashion adopted them. The Cavaliers of Charles the First's time were a sticked race. Charles the First, when at his trial, held out his stick to forbid the Attorney-General's proceeding. There is an interesting little story connected with a stick, which is related of Andrew Marvell's father, (worthy of such a son), and which as it is little known, we will repeat; though it respects the man more than the machine. He had been visited by a young lady, who in spite of a stormy evening persisted in returning across the Humber, because her family would be alarmed at her absence. The old gentleman, high-hearted and cheerful, after vainly trying to dissuade her from perils which he understood better than she, resolved in his gallantry to bear her company. He accordingly walked with her down to the shore, and getting into the boat, threw his stick to a friend, with a request, in a lively tone of voice, that he would preserve it for a keepsake. He then cried out merrily "Ho-hoy for Heaven!" and put off with his visitor. They were drowned.

As commerce increased, exotic sticks grew in request from the Indies. Hence the Bamboo, the Whanghee, the Jambee which makes such a genteel figure under Mr. Lilly's auspices in the Tatler; and our light modern cane, which the stroller buys at sixpence a piece, with a twist of it at the end for a handle. The physicians, till within the last few score of years, retained the wig and gold-headed cane.

Canes became so common before the decline of the use of sticks, that whenever a man is beaten with a stick, let it be of what sort it may, it is still common to say that he has had "a caning." Which reminds us of an anecdote more agreeable than surprising; though the patient doubtless thought the reverse. A gentleman, who was remarkable for the amenity of his manners, accompanied by something which a bully might certainly think he might presume upon, found himself compelled to address a person who did not know how to "translate his style," in the following words, which were all delivered in the sweetest tone in the world, with an air of almost hushing gentility:—"Sir,—I am extremely sorry—to be obliged to say,—that you appear to have a very erroneous notion of the manners that become your situation in life;—and I am compelled, with great reluctance, to add,"—(here he became still softer and more delicate,) that if you do not think fit, upon reflection, to alter this very extraordinary conduct towards a gentleman, I shall be under the necessity of—caning you." The other treated the thing as a joke; and to the delight of the bye-standers, received a very grave drubbing."



Menyanthes trifoliata.

MENYANTHES TRIFOLIATA.—THE BUCKBEAN OR BOGBEAN. MARSH TREFOIL.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, GENTIANEÆ.—THE GENTIAN TRIBE.

Fig. (a) represents the flower expanded and somewhat magnified, to show the stamens, germen, and style.

BUCK-BEAN, or Bog-bean, so termed from its leaves resembling those of the common garden-bean, is one of the most beautiful of our indigenous plants; "nor does it suffer," as Mr. Curtis justly observes, "when compared with the Kalmias, the Rhododendrons, and the Ericas of foreign climes, which are purchased at an extravagant price, and kept up with much pains and expense, while this delicate native, which might be procured without any expense, and cultivated without any trouble, blossoms unseen, and wastes its beauty in the desert air."

It is a native of many parts of Europe, growing abundantly in marshy meadows, and ponds, and sometimes even in ditches. The most spongy, boggy soils, which are inundated at certain seasons, and never wholly destitute of water, are the favourite stations of this plant. It often constitutes large beds, at the margins of ponds and brooks. We obtained it on the great bog on the western slope of Hampstead heath, where it grows in great plenty; but flowers very sparingly, about the end of June and beginning of July. It is common in many parts of North America, particularly in New England, and grows, according to Pursh, as far south as Virginia.

Professor Bigelow states that the Buck-bean is one of those plants which are native in Europe, and North America, with so little difference of structure in the two continents, that their specific identity can hardly be doubted; and after examining specimens from both, he could perceive no definable difference, excepting in size. The English plant, however, flowers a month later than its American representative does in the neighbourhood of Boston.

Buck-bean has a long, creeping, jointed root, with perpendicular radicles, from which proceeds a smooth, erect, cylindrical stem, that is naked and destitute of leaves, and rises to the height of a foot. The leaves are bright green, obovate, wavy, with a thick midrib, smooth on both sides, ternate or growing by threes, like those of trefoil, (whence the names Marsh-trefoil, *trifolium paludosum*, *le Treffle d'eau*, and *Menyanthes trifoliata*;) at the extremity of a common foot-stalk, which issues immediately from the root, and is round, striated, forms a sheath at the bottom, and is shorter than the flowering stem. The flowers grow in a loose spike at the extremity of an erect, round, smooth stalk, longer than the leaves, which springs from within the sheath of a leaf. They are ten or twelve in number, each supported on its proper pedicel, and accompanied by small ovate bracteas. The calyx is divided into five deep, slightly spreading segments: the corolla is funnel-shaped, divided beyond the middle into five deep, spreading or recurved, pointed segments, which are white tipped with rose-colour, smooth externally, and clothed with dense, white, shaggy fibres on their upper side. The filaments are awl-shaped, bearing erect sagittate anthers of a reddish colour; germen conical; the stigma lobed or notched, with a slender style twice the length of the stamens. The capsule is ovate, succulent, 1-celled, which, when it has attained maturity, separates into two valves inclosing several small roundish seeds of a brown or yellowish colour.

Of the etymology of the generic name *MENYANTHES*, retained from the Greek and Latin botanist, we can give no really satisfactory account. Some render it moon-flower, a name which has reference to its presumed emmenagogue effects, in which case however it should have been written *Meneanthos*, as being compounded of *μηνή* the moon, and *ανθος* a flower, but such corruptions are not uncommon. Others deriving it from *μενω* to remain, conceive the name to be expressive of the permanency of the flower; but this conjecture is even more fanciful than the former. The name Buck-bean, is either a corruption of Bog-bean, or, what is more probable, is derived from the French, *le Bouc*, a he-goat; the plant having formerly been distinguished by the appellation, *Phaseolus Hircinus*, that is, Goat's-bean.

QUALITIES AND CHEMICAL PROPERTIES. The whole plant, and particularly the root, has an intensely bitter taste, which resides chiefly in an extractive matter, soluble in water and spirit. The root is, however, resinous, and impregnates alcohol more strongly than water; and may be precipitated from its

tincture, in part, by the latter fluid. The bitter principle is not precipitated by infusions of galls, and is thought to be the same that abounds in gentian. According to the analysis of Fromsdorf, 100 parts of the fresh plant consists of 75 parts of water, and 25 of solid matter. The expressed juice on evaporation yields 0,75 of fecula and albumen, 0,25 of a green resin, with traces of malic acid, acetate of potash, a peculiar substance resembling animal matter, a very bitter, azotic extract, and a brownish gum.

MEDICAL PROPERTIES.—The root of this which is given in small doses of about ten grains, imparts vigour to the stomach, and strengthens digestion. Its virtues were formerly properly estimated, and strange it is that so excellent a tonic should be so little employed. It gives out its bitterness to boiling water, and a tincture may be made from it quite equal in its effects to that of gentian. Large doses, either in substance or decoction, produce sickness, &c., and frequently powerful diaphoresis; in which respect it resembles many other vegetable bitters. Formerly it was employed with benefit in intermittent and remittent fevers. Boerhaave was relieved from gout by drinking the juice of the plant mixed with whey; while Alston, and others assert, that it has the power of keeping off the paroxysms of that painful complaint. Dr. Cullen speaks still higher of its virtues, for he had seen several instances of its good effects in some cutaneous diseases of the herpetic or seemingly cancerous kind, when taken by infusion, in the manner of tea. Others have commended it for rheumatism, dropsy, scurvy, and worms; and its reputation in the north of Europe, particularly in Germany, was at one time so high that it was consumed in large quantities, and deemed a sort of panacea. Its true character, however, is simply that of a powerful bitter tonic, like gentian and centuary, to which, as Professor Bigelow observes, it is closely related in its botanical habit, as well as sensible properties. Linnæus informs us in his *Flora Lapponica*, that in times of scarcity flocks will subsist upon this plant, notwithstanding its bitterness; and Dr. Tancred Robinson asserts, that sheep which have acquired a tabid condition are quickly recovered by feeding in the marshy meadows which abound with it. The Laplanders employ it as a substitute for hops: and they even introduce it in some instances into their bread, upon which Linnæus bestows the epithet, "*amarus et detestabilis*." We conclude in the words of Bigelow when speaking of the American species: "we may regard this plant as one of the numerous bitters abounding in our country, which are fully equal in strength to imported articles of their class, and which may hereafter lessen our dependence on foreign drugs."

A popular author observes, that "there is not a more unthinking way of talking, than to say such and such pains and pleasures are only imaginary, and therefore to be got rid of or undervalued accordingly. There is nothing imaginary, in the common acceptance of the word. The logic of Moses in the Vicar of Wakefield is good argument here:—"Whatever is, is." Whatever touches us, whatever moves us, does touch and does move us. We recognize the reality of it, as we do that of a hand in the dark. We might as well say that a sight which makes us laugh, or a blow which brings tears into our eyes, is imaginary, as that any thing else is imaginary which makes us laugh or weep. We can only judge of things by their effects. Our perception constantly deceives us, in things with which we suppose ourselves perfectly conversant; but our reception of their effect is a different matter. Whether we are materialists or immaterialists, whether things be about us or within us, whether we think the sun is a substance, or only the image of a divine thought, an idea, a thing imaginary, we are equally agreed as to the notion of its warmth. But on the other hand, as this warmth is felt differently by different temperaments, so what we call imaginary things affect different minds. What we have to do is not to deny their effect, because we do not feel in the same proportion, or whether we even feel it at all; but to see whether our neighbours may not be moved. If they are, there is, to all intents and purposes, a moving cause. But we do not see it? No;—neither perhaps do they. They only feel it; they are only sentient,—a word which implies the sight given to the imagination by the feelings. But what do you mean, we may ask in return, by seeing? Some rays of light come in contact with the eye; they bring a sensation to it; in a word, they touch it; and the impression left by this touch we call sight. How far does this differ in effect from the impression left by any other touch, however mysterious? An ox knocked down by a butcher, and a man knocked down by a fit of the apoplexy, equally feel themselves compelled to drop. The tickling of a straw and of a comedy equally move the muscles about our mouth. The look of a beloved eye will so thrill the whole frame, that old philosophers have had recourse to a doctrine of beams and radiant particles flying from one sight to another. In fine, what is contact itself, and why does it affect us? There is no one cause more mysterious than another, if we look into it.



Anchusa tinctoria L.

ANCHUSA TINCTORIA.—DYER'S ALKANET.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BORAGINÆ.—THE BORAGE TRIBE.

Fig. (a) the flower somewhat magnified, showing the stamens and arched valves; (b) the calyx and pistil a little magnified; (c) the fruit.

THIS plant is a perennial, a native of the south of Europe, and was found by Sibthorp in Greece. It is sometimes raised in our gardens; but the roots do not acquire in this country the fine red colour for which the foreign alkanet is prized. It has long been extensively cultivated for medicinal purposes in the neighbourhood of Montpellier, in France. It flowers from June to October.

The root is woody, long, round, tapering, branched, and covered with a blackish-red coloured bark. The herb is all over rough with short bristly hairs, proceeding from small cartilaginous tubercles or warts. Several stems arise from one root; they are round, leafy, branched, paniced above, and about a foot or eighteen inches high. The leaves are oblong, entire, convex above, and keeled underneath; the radical ones forming a tuft on the ground, elongated and tapering towards the base; the rest smaller, alternate, slightly dilated at the base, and partly embracing the stem. The spikes are generally in pairs, bent towards the top, many-flowered, with ovate bractæas, twice the length of the calyx. The calyx is reddish, with short hairs, and divided into five oblong-lanceolate segments. The corolla is funnel-shaped, consisting of a straight cylindrical tube, tumid at the lower part, closed at the mouth with five small roundish convex valves, and divided at the limb into five deep, obtuse, equal segments, of a deep azure colour. The filaments are shorter than the corolla, bearing roundish anthers: the carpels four, with awl-shaped styles, nearly as long as the tube, with a small notched stigma. The seeds are oblong, and rough with tubercles.

QUALITIES AND CHEMICAL PROPERTIES.—Alkanet root, as met with in commerce, is inodorous and nearly tasteless. The red colouring matter, according to Pelletier, with which the cortical part abounds, is of a brownish red colour, runs into a mass, which breaks with a resinous fracture, is soluble in alcohol, ether, and fat oils, which it colours red, while they preserve their transparency. It imparts scarcely any colour to water. It forms blue combinations with potass, soda, barytes, strontia, and lime: is decomposed by the action of concentrated sulphuric acid; and is converted into oxalic acid by nitric acid. When precipitated from its alcoholic menstrea by the aid of metallic solutions, it forms an excellent varnish. This colouring matter is considered by John to be a peculiar proximate principle which he has called *Pseudo-Alkannin*. M. Chevreul has lately discovered in the *Anchusa tinctoria*, and in the root of the *Viburnum Opulus* a new acid, which he terms *Phocénique*. Sometimes the roots of the *Onosma echiioides*, and *O. tinctoria*, are substituted for the *Anchusa tinctoria*. *Anchusa Virginiana* and *Echium rubrum* have roots almost equally rich in colouring matter with the true alkanet, and are sometimes used instead of it. Bergius states that the roots of the *Borago officinalis* are occasionally boiled in a decoction of Brazil wood, and sold for alkanet: the fraud, however, is easily detected by inspection, and by the substitute failing to yield its colour to the fixed oils.

USES.—This plant was formerly administered as an astringent; but has given place to medicines much more worthy of regard. It is useless, excepting as a colouring matter for oils, lip-salve, and plasters.

“But what is a plant?” says Professor Burnett, in his introductory Lecture, at King’s College, “what do we mean by this word vegetable? It is a term the most ignorant presume they understand, although the most learned are unable exactly to define: for a plant is, indeed, as Theophrastus long ago observed, “a various thing, of which it is difficult to give a definition.”

Tell a clown that it is difficult to distinguish between an animal and a plant, he will smile incredulously, and perhaps will say, can I mistake man-orchis roots for men? but shew him a conferva and a polype, a

lichen and a coralline, a flustra and a flag, or even a mushroom and a mollusc, and he will at once confess, at least by silence, if not by words, that he "kens not which they be."

Such presuming self-confidence in what they know, is the "badge of ignorance and the curse of fools;" it is the humble privilege of the wise alone to doubt; and they who know the most are always the most sensible how little the most enlightened know.

But this matter is apocryphal not to the unlearned and the ignorant alone: physiologists the most acute have laboured, and do labour, still in vain, succinctly, yet comprehensively, to define a plant. The difficulty, however, consists not so much in the perception of the differences which undoubtedly do exist, as in reducing these perceptions of the progressive scale of creation to our still very imperfect language. The dilemma somewhat resembles that in which an ancient philosopher is said to have been involved, who when desired to state what motion is, after much consideration, rose from his seat, walked towards the inquirer, and replied, "You see it, I can shew it to you, but I cannot tell you what motion is. Thus, also, to our question I would answer, here are plants; you see them; I can shew them to you even if I cannot, at this early period of our course, precisely tell you what a vegetable is.

Let not the bearing of this statement, however, by any one be misunderstood. Remember it is not science which *makes* the difficulty she here points out; she only shews what already is: just as "a microscope does not make the hairs on a mite's back, but only brings them within our sphere of vision. Examine for a moment these specimens illustrative of the different departments of the vegetable world; these mushrooms, flags, and mosses; these jointed and these jointless ferns; these grasses, sedges, rushes, lilies, palms; these pines, and forest trees; and these more showy flowering herbs and shrubs; of each of which extensive sections, but meagre examples, can, of necessity, be brought before you, and yet which are scattered in such infinite profusion "o'er all the deep green earth," that their varied forms and beautiful appearances are familiar to the least observant: examine these, and say, do they not attest the dogma of him of old, that a vegetable is, indeed, a various, a very various thing, of which it is difficult to give a definition: and do they not equally proclaim that science does not make the difficulty she here points out? do they not declare that she only shews what already is, although it may have hitherto escaped our observation? And hence we may conclude that the unlearned do not know more truly, because they are insensible of the imperfections of their knowledge, any more than a road becomes smooth to the purblind, merely because they do not see its roughness. Whatever is, still is, whether we know it or know it not; doubtless from the beginning eight planets always were, although the ancients knew but seven; for Herschel's telescope did not create the Georgium Sidus, but only shewed to man what mortal eyes had never seen before.

But the difficulty of diagnosis between animals and plants, and even between living and lifeless beings, so often and by so many dwelt on, is rather a speculative than a practical obscurity. Every one is sensible of differences existing between the numerous productions of nature; for were not such differences obvious, the whole would be esteemed not various, but the same. All persons, then, distinguish the peculiarities that mark the successive grades of physical existence, though few are competent to state precisely in what that difference consists: the one is the unsought observation of the savage, the other the hard-earned achievement of the sage; the former a perception that no one can avoid, the latter a science in which, not seldom, the wisest are at fault.

Still, before we presume to talk of plants, it may perhaps be required that we should attempt to solve the question that so continually recurs; viz. what is a vegetable? For plants are the principles on which all botanic lore depends; they are the very subject-matter upon which we must discourse: and although we cannot absolutely, we can relatively define them, which relative definition is, in truth, all that can legitimately be sought in any branch of natural history or philosophy. With this relative definition we shall, therefore, rest content; for the search after the absolute and positive too often becomes, as Butler has observed, on a somewhat similar occasion:—

"An ignis fatuus that bewitches,
And leads men into pools and ditches."

Hence, to shew what constitutes this various thing we call a vegetable; *i. e.* to indicate the various phenomena exhibited by certain physical existences, to note what characters distinguish the organic from the inorganic world; and amongst organic beings the vegetable, or merely vital, from the animal or sensual creation; in a word, which constitutes the several grades of men, brutes, and plants, involves much curious and important knowledge.



Aquilegia Canadensis.

AQUILEGIA CANADENSIS β GRACILIS.—SLENDER CANADIAN COLUMBINE.

CLASS XIII. POLYANDRIA.—ORDER V. PENTAGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

1. The stamens exhibited with a portion of the corolla. 2. Pistils.

GENERIC CHARACTER.—*Cal.* none. *Cor.* Petals five, lanceolate, ovate, flat, spreading, equal. Nectaries five, equal, alternate with the petals; each horned, gradually broader upwards, with an oblique mouth, ascending outwardly, annexed inwardly to the receptacle; produced below into a long attenuated tube with an obtuse top. *Stam.* Filaments thirty to forty, subulate, the outer ones shorter; anthers oblong, erect, the height of the nectaries. *Pist.* Germs five, ovate-oblong, ending in subulate styles longer than the stamens. Stigmas erect, simple. Chaffs ten, wrinkled, short, separate, and involving the germs. *Per.* Capsules five, distinct, cylindric, parallel, straight, acuminate, one-valved, gaping from the tops inward. *Seeds* very many, ovate, keeled, annexed to the gaping suture.

SPECIFIC CHARACTER.—*Nectaries* straight. *Stamens* longer than the corolla.

Root perennial. Stem slender, erect, of a bright brown, supporting both leaves and flowers towards its summit: these leaves are sometimes simple, and merely lobed, while those from the root are compound, being biternate. The flowers are supported on foot-stalks from two to three inches in length. The corolla is composed of five nectaries, of a strong red towards their summit, and of a bright yellow at the mouth, between each of which is seated five small linear petals, also red. The pericarp is composed of five lobes.

The original species of *Aquilegia canadensis* has long been known and admired by the cultivators of choice flowers. The present figure is a variety which has been produced from that alluded to, and is found to possess all the attractive qualities of the parent plant, added to a peculiar delicacy of nature of its own, which has given rise to its present distinguishing name as a variety. Its style of growth is more slender and delicate than in the original species; and it requires more delicacy of treatment in its cultivation, being very particular in its soil and situation. It should be planted in a light earth composed of decayed leaves with a small portion of loam: it is more likely to succeed if kept in a pot. Thus treated, its beauties are displayed to better advantage; and it may here be better protected against a very destructive enemy, the wire-worm, which frequently attacks it in the open ground. It generally attains the height of from nine inches to a foot, producing a succession of flowers during the month of May. It will perfect its seeds, by which means it is readily increased.

The species from which this variety was produced is a native of Canada, and was introduced in 1640.*

Mr. Howitt observes that in September "The general aspect of nature is decidedly autumnal. The trees are beginning to change colour; the orchards are affluent of pears, plums, and apples; and the hedges are filled with the abundance of their wild produce, crabs, black glossy clusters of privet, buckthorn, and elder-berries which furnish the farmer with a cordial cup on his return from market on a winter's eve, and blackberries, reminding us of the Babes in the Wood.

Their little hands and pretty lips
With blackberries were dyed;
And when they saw the darksome night,
They sate them down and cried.

The hedgerows are also brightened with a profusion of scarlet berries of hips, haws, honeysuckles, viburnum, and bryony. The fruit of the mountain-ash, woody nightshade, and wild-service is truly beautiful; nor are the violet-hued sloes and bullaces, or the crimson, mossy excrescences of the wild rose-tree, insignificant objects amid the autumnal splendours of the waning year.

Notwithstanding the decrease of the day, the weather of this month is for the most part, splendidly calm; and Nature, who knows the most favourable moment to display all her works, has now instructed the geometric spider to form its radiated circle on every bush, and the gossamer spider to hang its silken threads on every blade of grass. We behold its innumerable filaments glittering with dew in the morning; and sometimes, such is the immense quantity of this secretion, that it may be seen floating in a profusion

* Flora Conspicua.

of tangled webs in the air, and covering our clothes, as we walk in the fields, as with cotton. These little creatures, the gossamer spiders, it has long been known, have the faculty of throwing out several of their threads on each side, which serve them as a balloon to buoy them up into the air. With these they sail into the higher regions of the atmosphere, or return with great velocity. By recent experiments, it appears that the spider and its web are not, as it was supposed, of less specific gravity than the air, and by that means ascend. The phenomenon has been supposed to be electrical, but this is doubtful: it yet requires explanation.

There is now a brightness of the sky, and a diaphanous purity of the atmosphere, at once surprising and delightful. We remark with astonishment how perfectly and distinctly the whole of the most extensive landscape lies in varied, solemn beauty before us; while, such is the reposing stillness of nature, that not a sound disturbs the sunny solitude, save perhaps the clapping of pigeons' wings as they rise from the stubbles. The clearness of vision may partly arise from the paucity of vapour ascending from the ground at this dry season, and partly from the eye being relieved from the intensity of splendour with which it is oppressed in summer; but be it what it may, the fact has not escaped one of our most beautiful poets.

There is a harmony
In autumn, and a lustre in its sky,
Which through the summer is not heard nor seen,
As if it could not be, as if it had not been.

Now it is delightful among mountains. Mountains! how one's heart leaps up at the very word! There is a charm connected with mountains, so powerful that the merest mention of them, the merest sketch of their magnificent features, kindles the imagination, and carries the spirit at once into the bosom of their enchanted regions. How the mind is filled with their vast solitude! how the inward eye is fixed on their silent, their sublime, their everlasting peaks! How our heart bounds to the music of their solitary cries, to the tinkle of their gushing rills, to the sound of their cataracts. How inspiring are the odours that breathe from the upland turf, from the rock-hung flower, from the hoary and solemn pine! how beautiful are those lights and shadows thrown abroad, and that fine transparent haze which is diffused over the valleys and lower slopes, as over a vast, inimitable picture!

At this season of the year the ascents of our own mountains are become most practicable. The heat of summer has dried up the moisture with which winter rains saturate the spongy turf of the hollows; and the atmosphere, clear and settled, admits of the most extensive prospects. Whoever has not ascended our mountains, knows little of the beauties of this beautiful island. Whoever has not climbed their long and heathy ascents and seen the trembling mountain-flowers, the glowing moss, the richly tinted lichens at his feet; and scented the fresh aroma of the uncultivated sod, and of the spicy shrubs; and heard the bleat of the flock across their solitary expanses, and the wild cry of the mountain-plover, the raven, or the eagle; and seen the rich and russet hues of distant slopes and eminences, the livid gashes of ravines and precipices, the white glittering line of falling waters, and the cloud tumultuously whirling round the lofty summit; and then stood panting on that summit, and beheld the clouds alternately gather and break over a thousand giant peaks and ridges of every varied hue,—but all silent as images of eternity; and cast his gaze over lakes and forests, and smoking towns, and wide lands to the very ocean, in all their gleaming and reposing beauty;—knows nothing of the treasures of pictorial wealth which his own country possesses.

We delight to think of the people of mountainous regions; we please our imaginations with their picturesque and quiet abodes; with their peaceful secluded lives, striking and unvarying costumes, and primitive manners. We involuntarily give to the mountaineer heroic and elevated qualities. He lives amongst noble objects, and must imbibe some of their nobility; he lives amongst the elements of poetry, and must be poetical; he lives where his fellow-beings are far, far separated from their kind, and surrounded by the sternness and the perils of savage nature; his social affections must therefore be proportionably concentrated, his home-ties lively and strong; but, more than all, he lives within the barriers, the strongholds, the very last refuge which Nature herself has reared to preserve alive liberty in the earth, to preserve to man his highest hopes, his noblest emotions, his dearest treasures, his faith, his freedom, his hearth and his home. How glorious do those mountain-ridges appear when we look upon them as the unconquerable abodes of free hearts; as the stern, heaven-built walls from which the few, the feeble, the persecuted, the despised, the helpless child, the delicate woman, have from age to age, in their last perils, in all their weaknesses and emergencies, when power and cruelty were ready to swallow them up, looked down and beheld the million waves of despotism break at their feet:—have seen the rage of murderous armies, and tyrants, the blasting spirit of ambition, fanaticism, and crushing domination recoil from their bases in despair!—"Thanks be to God for mountains!" is often the exclamation of my heart as I trace the History of the World; from age to age, they have been the last friends of man. In a thousand extremities they have saved him. What great hearts have throbbed in their defiles from the days of Leonidas to those of Andreas Hofer! What lofty souls, what tender hearts, what poor and persecuted creatures have they sheltered in their stony bosoms from the weapons and tortures of their fellow-men!



Begonia lucida L.

BEGONIA NITIDA.—SHINING-LEAVED BEGONIA.

CLASS XXI. MONŒCIA.—ORDER VI. POLYANDRIA.

NATURAL ORDER, BEGONIACEÆ.

GENERIC CHARACTER.—*Male flowers.*—Calyx wanting. Corolla polypetalous; petals commonly four, unequal. *Female flowers.*—Calyx wanting. Corolla with from four to nine petals, generally unequal. Styles three, bifid. Capsule triquetrous, winged, three-celled, many-seeded.

SPECIFIC CHARACTER.—Plant, a tall shrub. Leaves oblique, ovate, acute, obsoletely crenated, shining. Stipules oblong, cuspidate, keeled. Male flowers with four petals; two roundish, two oblong, and smaller. Female flowers with five equal petals. Capsule with a large wing.

SYNONYMOUS.—*B. obliqua*, *B. purpurea*, *B. minor*.

It affords us much gratification to perceive that this family is in some degree engaging the attention it is worthy of; but we have not yet much cause to exult, so little is the worth of its members appreciated, compared with what it ought to be. No genus of plants, as a whole, deserves more extensively to be grown; distinguished as they are by so great a diversity of character, and real beauty, and flowering freely in the extreme: some species do so nearly always, and no portion of the year is unenlivened by the blossoms of some of them. And again, they are so easily cultivated; several kinds grow and flower very freely in the greenhouse, though all are benefited by a warmer temperature, and many necessarily require it.

"The Botanical Magazine" (from which our specific character is borrowed) informs us that *B. nitida* was received at Kew from Dr. W. Brown, in 1779: it is a native of Jamaica, and one of the best of the light-flowering species; grows freely and erect, becoming a large bush, and bearing panicles of pinkish-white flowers in profusion all summer: these contrasting with the rather large, oblique, shining leaves, have a fine effect.

The ease with which *Begonias* flourish and produce bloom under any kind of treatment, though rendering them plants which all may cultivate with success, has led (in conjunction, probably, with the succulency of their nature preventing their being regarded in any other light than as objects of ornament) to their merits being lost sight of. No plants are more susceptible of improvement by good culture than the family of which the one under consideration is a member: a plant of *B. coccinea* which recently came under our observation, enjoying in a high degree the benefit of good management, could scarcely be equalled (viewing it ornamentally) by any plant, whatever its merits.

The name on the plate is one of the many by which this plant is known, but, as will be seen, is not the correct one.

Begonia is in honour of Michael Begon, a botanist of the seventeenth century.*

Professor Burnett, in his Lecture delivered in King's College, observes, that, without reference to obscure archæological researches, the antiquity of our science may fairly be assumed, for plants were the first beings that ever sprang instinct with life on this terraqueous globe, and their culture and their care formed man's earliest employment: since, on the third day of the Creation, so soon as the dry land appeared, when, at the Divine behest, the earth brought forth grass and herbs yielding seed, and the fruit tree yielding fruit, and God saw that these works were good; since the Almighty planted a garden eastward in Eden, and put man, whom he had made, therein to dress it and to keep it; i. e. since out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food, and, to crown his works, created man to wonder and adore, among the numerous natural miracles which demand his notice and solicit his regard, as there are none that have received, perhaps there are few that have deserved, a greater share of attention than the wonders of the vegetable world, than the trees of the forest and the flowers of the field, which afford the chief and once the only means of sustenance to him and his. Hence some knowledge of such plants as are useful for food, as medicines, or in the arts, must have been almost coeval with our race, at least congenital with the wants of man; and this knowledge, once empirical, and merely the result of casual observation, was then (as fitted best) called *Herb-craft*; but since that the practice has been reduced to principle, it constitutes a science; it is that branch of natural philosophy and natural history now termed Botany. But, as I shall endeavour to convince you, the botany of the natural philosopher is very different from the botany of the world at large; very different from that specious yet unreal mockery of science, that spurious yet popular and fashionable trifling, which, unconscious of the first principles of vegetable physics, contents itself with superficially scanning the names of plants, esteeming that an end which should never be considered as more than a subordinate, a secondary mean. System is but an instrument, and should never be mistaken for the work it is destined to perform: and such botanists as would confine their studies to mere names and schemes, who burden themselves with

* Paxton's Magazine of Botany.

tools which are worthless when unused, and which they use not for the purposes for which they were designed, are like scholastic pedants who make language their only study, without reference to the truths which language is destined to reveal; they are always moving, yet never getting on, never getting farther than the threshold of vegetable philosophy; for ever treading as on the wheel, a weary round of never-changing place, of never-ending toil.

Plants are the subjects of botany, their attributes the objects of the science; and, as with other things, these are essential, technical, and accidental; those, universal, general, and special; these, the objects of the study; those, the subjects to be studied; and to the reciprocal elucidation of both, the science, as a whole, is equally devoted.

The language of botany has often been regarded with fear, and we still find it to be that part of the study most commonly objected to. This is not the only case, however, in which the facilities afforded by science have been ignorantly mistaken for difficulties inseparable therefrom: other instances could be given in which what we might perhaps be allowed to call the almost too exclusive privileges of botany, have been described as its peculiar disadvantages by those who little understood their import, and consequently were led to underrate and misrepresent their value. To these I shall not further now allude, but confine my present animadversions to this outcry against *hard words*, as the technicalities of science have foolishly been called; whereas, it should be remembered, as JOHNSON says, that "words are only hard to those who do not understand them," and, so far from our terms being really hard, the language of botany is more easy and intelligible, because it is more copious and precise, than that of the other natural sciences.

Oh, believe me, the feelings with which a botanical philosopher contemplates the various productions of the vegetable world are very different from those with which they are viewed by one unblest by the light of science! How different is the barren knowledge of the existence of all these things around us, which every one knows to be from a knowledge of the laws by which they are regulated and sustained. Never, indeed, to my mind, does true wisdom more fully vindicate her majesty and power, than when, as in this case, she thus unfolds a leaf turned down by nature, and reveals to us a record of those changes which long since have been forgotten, (if, indeed, to man they were ever known,) than when she thus turns back the pages of past time, and reads in these majestic tablets of the Creator the history of his wondrous works, as published in the volume of creation. The whole earth, like Ezekiel's scroll, is written over, both within and without: to the ignorant and the thoughtless it may, perhaps, appear to be inscribed with mourning, lamentation, and woe; but to the philosopher it tells a constant tale of miracle and mercy, as HUNTER has well observed on a somewhat similar occasion: "appearances of this sublime nature may be compared to the handwriting upon the wall, which, although seen by many, was understood by few: they seem to constitute a kind of harmonious intercourse between God and man; they are, indeed, the silent language of the Deity."

I would, therefore, recommend all persons to indulge themselves in the delights of botany; for they will find it a relaxation rather than a toil, an amusement rather than a labour; a profitable pastime in youth, an agreeable occupation in manhood, and a gratifying research in honourable old age; when having, as we hope all will do, passed through this world useful to their generation, and not useless to themselves; when having acquired, by meritorious exertion, a competency of wealth and a sufficiency of fame, they may retire, like Cincinnatus, from the senate to the field, and in a garden—(what pleasure is there not associated with the very name of a garden, it bespeaks at once serenity and ease,)—in a garden forget awhile this world, its turmoils and its cares, before they are summoned to quit it for a better.

Botany, like all other studies, requires for its successful pursuit some small share both of ardour and attention, but certainly much less than has been frequently supposed; not more, perhaps far less, than many collateral sciences would seem to demand. For we ask not that entire dedication of the mind which some abstract and speculative philosophers have claimed from those who offer to become their pupils; we only ask attention.

I think we hear too much by far of the rugged road to learning, too much of, "the steep where fame's proud temple stands," as if to deter, even whilst inviting, the timid yet ingenuous aspirant: the road, believe me, has many beauties in its course; the steep has many steps to ease its weary height; and they who have trod the path well know that it is not very rugged; they who have scaled the steep well know that it is not high; the one is rugged only to the slothful, the other steep to such alone as lie grovelling at the base. Let but the will be father to the deed, and then the deed is done. Tell me not of the student's midnight toil, I know it to be rather the midnight pleasure; for what time is ever so much enjoyed as that which, redeeming from perdition more truly than any other, we may call our own: what hours are ever so dear when present, so doubly dear to memory when past, as those in which we wake and work while others sleep.

Forgive me if I am wrong, perhaps I am too hasty in my conclusions, perhaps I generalize here on insufficient grounds, on too meagre an association of particulars. There may be, in studies foreign to my pursuits, difficulties that I know not of: it becomes me therefore, not to speak decidedly of other sciences, but to restrain my positive asseverations to my own: and yet if others truly tell of the thorny paths which lead to their shrines of knowledge, why then it must be confessed that we botanists alone of all are privileged to strew our way with flowers.

Mentha.



Liposita.



Pulegium.

MENTHA PIPERITA.—PEPPER MINT.

CLASS XIV. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

Fig. (e) represents the calyx and pistil; (f) the corolla, with the stamens.

SEVERAL species of Mint are cultivated for medicinal and culinary uses. Of these the most important are Pepper Mint, *Mentha piperita*: Spearmint, *M. viridis*; and Penny-royal, *M. Pulegium*. They are all of them indigenous to Britain, and hardy perennials; well worthy the attention of those who love to look into flowery hedges,

“Or into the meadows where
Mints perfume the gentle aire,
And where Flora spreads her treasure.”

Pepper Mint grows wild in some parts of Britain, in watery places, and on the banks of streams, flowering in August and September; but it is not a common native plant. There are three varieties of this species; but the variety *a*, of Smith’s “English Flora,” is the one generally employed in medicine. The specimen figured was obtained from Mitcham in Surrey, where considerably more than one hundred acres of this herb are cultivated for the supply of the London market.

From a creeping rhizoma arises a stalk that is nearly erect, quadrangular, branched, and generally of a purplish colour, with short recurved hairs, to the height of two or three feet. The leaves stand opposite, on short footstalks, are of a dark green colour, ovate, serrated, acute, varying in breadth, smooth and shining above, and paler, with white and purple veins beneath; the leaves are never downy, but the middle rib, on the under side, is beset with short hairs. The spike-like thyrsus of flowers is solitary, bluntish, terminal, about the length of the leaves, interrupted and leafy below, with the lowest axillary cymes more distant, and sometimes spiked. The bractæas are lanceolate and fringed. The flower-stalks are either perfectly smooth, or very slightly hairy above. The calyx is slender, furrowed, covered with pellucid dots; the base quite smooth, and five-cleft, with the teeth dark purple and fringed. The corolla is funnel-shaped, longer than the calyx, and of a purplish colour. The filaments are awl-shaped, straight, and shorter than the limb. The germen is four-lobed, superior, with a slender style, longer than the corolla, and terminated with a bifid stigma.

In external appearance, Pepper Mint corresponds with *Mentha viridis*, for which it may easily be mistaken; but in that the leaves are sessile, and narrower in proportion to their length; the thyrsi are longer, and composed of more cymes. “England,” says Sir J. E. Smith, “has already been known as the country of the true *M. piperita*. What supplies its place in the north of Europe, is merely a variety of *M. hirsuta*, having a similar odour; and this is named *piperita* in the Linnæan herbarium.” Two varieties, a narrow-leaved and a broad-leaved, are cultivated in gardens, and some variegated kinds are considered as ornamental plants, particularly a reddish variety called Orange Mint.

MENTHA PULEGIUM.—PENNY-ROYAL.

Fig. (c) represents a perfect flower with the calyx removed; (d) the calyx and pistil.

PENNY-ROYAL* is a plant pretty generally known, being found every where on heaths in moist places, and flowering in September. Our figure was taken from a specimen growing by the side of a pond in Wimbleton Common; and on the same spot we also found *Acorus Calamus* and *Anthemis nobilis*.

The root of this plant is creeping. The stems are bluntly quadrangular, procumbent, downy at the upper part, and sending up erect, flowering ones to the height of eight or nine inches. The leaves are scarcely an inch in length, petiolated, ovate, obtuse, unequally serrated, with numerous pellucid dots, and slightly hairy underneath. The axillary cymes, which are supported on short, purplish stalks, are numerous, many-flowered, sessile, and of a pale lilac colour. The calyx is five-cleft, tubular, slender, nearly cylindrical, strongly furrowed, and clothed with short downy hairs; five-cleft, with the teeth unequal, pointed, and fringed. The corolla is longer than the calyx, externally hairy, of a light purple, and sometimes of a white colour. The stamens are erect, and longer than the corolla; the germen is four-cleft, with a slender style, furnished with a bifid stigma.

In its wild state, the plant trails upon the ground, and strikes root at the joints; but the markets are usually supplied with a garden variety, which is larger than the other, and grows nearly upright.

Many virtues are ascribed to mint by the ancients, but we are ignorant of the species to which they refer.

* It may not be improper here to mention, that the American plant, known by the name of Penny-royal, is entirely different from the Penny-royal of Britain, and belongs to a different genus, *Hedeoma*.—See Barton’s *Vegetable Materia Medica* of the United States. v. ii. p. 168.

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Clitoria turnateca major.

CLITORIA TERNATEA MAJOR.—GREATER CLITORIA.

CLASS XVII. DIADELPHIA.—ORDER III. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

GENERIC CHARACTER.—*Calyx* furnished with two large bracts at the base, five-cleft. *Vexillum* large. *Stamens* diadelphous, inserted along with the petals above the base of the calyx. *Style* rather dilated at the apex. *Legume* linear, compressed, straight, two-valved, acuminate by the base of the style, one-celled, many-seeded. *Seeds* usually separated by cellular substance.—*Don's Gardening and Botany*.

SPECIFIC CHARACTER.—*Plant* sub-shrubby, evergreen. *Stems* twining, pubescent, branching at the axil of each leaf. *Leaves* with from two to four pairs of ovate mucronate leaflets, and a terminal odd one, nearly smooth, but sometimes having a few minute hairs. *Stipules* very small, awl-shaped. *Bracts* large, roundish. *Calyx* tubular, with five lanceolate segments, remaining in a dry state around the base of the *Flowers* of a considerable size, bright-blue. *Legumes* long, slightly downy.

VAR. MAJOR.—A plant raised from seeds, received from New South Wales having large deep blue flowers.

Few gardens, we imagine, in which plants receive the commonest share of attention, will not at some period have possessed the singular and beautiful *Clitoria ternatea*, which is a native of India. Our present subject is from Sydney, New South Wales, whence seeds of it were received by the Lady of B. Harrison, Esq., a gentleman, neighbour of J. Cook, Esq., of Brooklands, Blackheath, Kent, and to whose successful gardener, Mr. W. P. Ayres, they were presented; and being raised, and flowering, proved to be a distinct and very superior variety, well deserving to be distinguished by the name now given it.

"The Clitorias" Mr. Ayres says, "do not root freely from cuttings, but they produce abundance of seed."

In saying, "The Clitorias do not root freely from cuttings," Mr. Ayres doubtless alludes to *C. ternatea*, its varieties, and the annual species in general, as we have not found such others as have come under our notice subject to the difficulty he mentions.

A soil consisting of loam, peat, and leaf-mould, so proportioned as to constitute it light, with good drainage secured to the pots in which the plants are grown, will be found very favourable to their welfare.

Clitoria is from *Clitoris*, an anatomical term; to the subject of which the flowers are thought to bear some resemblance.*

M. de Mirbel, in his very excellent treatise "On the Anatomy and Physiology of Plants," has endeavoured to lay down a distinction between the animal and the vegetable world in the following terms, and it is a distinction which seems to be approved by Sir Edward Smith:—Plants alone have a power of drawing nourishment from inorganic matter, mere earths, salts, or airs; substances incapable of nourishing animals, which only feed on what is or has been organized matter, either of a vegetable or animal nature. So that it should seem to be the office of vegetable life alone to transform dead matter into organized living bodies."

Dr. John Mason Good objects to this distinction between vegetable life and animal life, and observes, that in laying down a distinctive character for animals and plants we are compelled to derive it from the more perfect of each kind, leaving the extreme cases to be determined by the chemical components elucidated on their decomposition. Under this broad view of the subject he proceeds to observe, that while they agree in an origin by generation, a growth by nutrition, and a termination by death; in an organized structure, and an internal living principle; they differ in the powers with which the living principle is endowed, and the effects it is capable of exerting. In the plant it is limited, so far as we are capable of tracing it, to the properties of irritability, contractility, and simple instincts.

The structure of vegetables is truly wonderful, and demands our admiring attention. How excellently adapted are the roots for taking hold of their parent earth, as well as for drawing nourishment for the support of the plant, and imbibing moisture from the neighbouring soil! How commodiously are the various tubes and fibres composing the trunk or stalk arranged for the motion of the sap upwards, to all the extremities of the leaves and branches! How nicely are the leaves formed for the important services they are made to yield in the economy of vegetation! What an excellent clothing does the bark afford, not only for protecting the stem and branches from external injury, but from the hurtful extremes of heat and cold! What evident marks of wisdom and design do the flowers evince in their beautiful and delicate

* Paxton's Magazine of Botany.

construction; how nicely are they formed for the protection and nourishment of the first and tender rudiments of the fruit, and when it has attained more firmness and solidity, how readily do they relinquish their charge, and drop off in decay, when no longer necessary! How wonderfully does the fruit, in some classes, envelope and protect the seed till it has arrived at maturity; and lastly, what a passing strange piece of organized mechanism is the seed itself, and, being necessary for the reproduction of its species, what a remarkable provision is made for its preservation and succession! What but the wisdom of a Deity could have devised, that those seeds which are most exposed to the ravages of the inhabitants of the forest should not only be doubly, but some of them trebly enclosed;* that those most in request as articles of food, should be so hardy and so abundantly prolific;† and that seeds in general, which are the sport of so many casualties, and exposed to injury from such a variety of accidents, should be possessed of a principle of lasting variety, which makes it indeed no easy matter to deprive them of their fructifying power! Plants are also multiplied and propagated by a variety of ways, which strengthen the provision made for their succession.

Nor is the finger of Providence less visible in the means for diffusing or spreading abroad vegetables, than in the provision made for keeping up their succession. The earth may be said to be full of the goodness of the Lord; but how comes it to pass, that in parts untrod by man, and on the tops of ruinous buildings, so many varied specimens of the vegetable creation are to be found? Is it not from the manner in which nature's great Husbandman scatters his seeds about? While the seeds of some plants are made sufficiently heavy to fall down and take up their abode near the place of their nativity; and others after having been swallowed up by quadrupeds, are deposited in the neighbouring soil; some are carried by the fowls of the air to places more remote, or, being furnished with a soft plumage, are borne on the winds of heaven to the situations allotted for them. To prevent some from pitching too near, they are wrapped up in elastic cases, which, bursting when fully ripe, the prisoners fly abroad in all directions; to prevent others from straying too far, they are furnished with a kind of grappling hooks, that arrest them in their flight, and attach them to the spot most congenial to their growth. *These are some of the doings of the Lord, and are wondrous in our eyes!*

In the construction of plants we observe a considerable difference in the consistence of the three classes. Compared with the shrubby race, how hard, firm, and tenacious is the trunk of the majestic oak; and, compared with the herbaceous tribe, how woody, tough, and elastic is the hawthorn twig! But for this, how could the mighty monarch of the wood have been able to withstand the fury of the tempest? While the more humble and lowly shrubs stand not in need of such firmness of texture, their pliability and elastic toughness, together with the prickly coat of mail by which they are enveloped, render them less susceptible of injury in their exposed situation.

Softness, united with a still greater degree of flexibility, are the distinguishing characteristics of the herbaceous order; and how wisely has this been ordered for the various purposes for which they were created! With the firmness of trees, to what a prickly stubble must nature's soft and downy carpet have given way! With the tenacity of shrubs, how would it have answered as food for our cattle?

There are, besides, a number of other properties and peculiarities in the vegetable kingdom, in which the wonderful working of the Divinity shines pre-eminent. How strange, for instance, that if a seed is sown in a reversed position, the young root turns of itself downwards, while the stem refuses to sink deeper in the soil, and bends itself round to shoot up through the surface of the earth! How surprising, that when the roots of a tree or a plant meet with a stone or other interruption in their progress under ground, they change their direction, and avoid it! How amazing, that the numerous shoots which branch out from the root in quest of moisture, pursue, as it were by instinct, the tract that leads to it—turn from a barren to a more fertile soil; and that plants shut up in a darksome room, bend or creep to any aperture through which the rays of light may be admitted!

What amazing variety of size, of shape, and of hue, do we discover among this multitudinous order of things! What different properties do some possess from others; and what a near approach do a few make to that superior order immediately above them, in the scale of existence! The sensitive plant, when slightly touched, evinces something like the timidity of our harmless animals; the *hedysarum gyrans*, or moving plant of the East, exhibits an incessant and spontaneous movement of its leaves during the day, in warm and clear weather; but in the night season, and in the absence of light and heat, its motions cease, and it remains, as it were, in a state of quiescence! The American Venus' flytrap, like an animal of prey, seems to lie in wait to catch the unwary insect.‡

* As in the walnut, we have first a thick, pulpy covering, then a hard shell; within is the seed, enclosed in a double membrane

† Wheat is not only a most prolific plant, but comes to maturity in hot and cold, as well as in temperate climates.

‡ Carpenter's Scripture Natural History.



Styrax Benzoin.

STYRAX BENZOIN.—BENZOIN STORAX, OR BENJAMIN TREE.

CLASS XXIII. POLYGAMIA.—ORDER I. MONÆCIA.

NATURAL ORDER, COMBRETACEÆ.—MYROBALAN TRIBE.

Fig. (a) corolla; (b) anthers; (c) calyx, germen, and style.

THOUGH Garcias ab Horto, Grimm, and Silviu, were acquainted with the real tree from which the resinous substance called Benzoin is collected, its botanical characters were entirely unknown to modern authors till about the year 1787, when Dryander fully ascertained it to be a *Styrax*. This was done at the request of the late Sir Joseph Banks, who obtained proper specimens of the tree from Mr. Marsden at Sumatra, where it is a native. Ray had erroneously supposed it to be the production of a North American shrub, thence called by Linnæus, *Laurus Benzoin*. The latter, in correcting this error fell into a no less mistake, making the Benjamin-tree a *Croton* in Mant. 2,294 and a *Terminalia* in the supplement 434. To this he is supposed to have been led by the French name of this *Croton* or *Terminalia* (*Bien-joint*), but he gives a better reason in justification of himself in the *Supplementum*, where he informs us that a piece of the true *Benzoe*, brought by Thunberg, very closely agreed, in its singular bark, with the tree before him, which grew in the stove at Upsal.

The Benzoin *Styrax* is of quick growth, and rises to a considerable height; it sends off many strong, round branches, which are covered with a fine downy and hoary bark. The leaves are about four inches long and two broad, alternate, on short footstalks, quite entire, pointed, oblong, elegantly reticulated with triply compound prominent veins, smooth on the upper surface, and clothed beneath with a fine dense hoary down. The flowers are in compound axillary clusters, seldom so long as the leaves, alternately branched, with angular downy stalks, and a few small, oblong, concave, more downy, deciduous bracteas. The flowers are from six to twelve in one cluster, smaller than those of *Styrax officinale*, and usually hang all upon the same side. The calyx is bell-shaped, downy, with very minute teeth; the corolla consists of five linear obtuse petals, four times longer than the calyx, connected together at the base, externally cineritious, and somewhat silky rather than downy. The filaments are ten, shorter than the petals, inserted into the receptacle, connected at the base into a tube almost as long as the calyx, and crowned with linear erect anthers. The germen is superior, ovate, and tomentose, with a slender style, and simple stigma. The fruit is similar to that of *Styrax officinale*.

In some of the northern parts of Sumatra, particularly near the sea-coast, there are several extensive plantations of these trees. The fruit being sown in the rice fields, springs up, and the young plants require only that the surrounding shrubs should be cleared away from them. When the trees have attained the age of six or seven years, incisions are made in the bark, from which the balsam exudes in the form of a thick, whitish, resinous juice. By exposure to the air, this juice soon hardens; it is then pared from the bark with a knife or chisel. For the first three years the trees yield the purest resin: this is of a white colour, inclining to yellow, soft and fragrant. Afterwards, for the next seven or eight years, an inferior sort is yielded; this is of a reddish yellow colour, degenerating to brown. At length the trees, unable to bear a repetition of the process, are cut down, and split into pieces. From these is procured, by scraping, a still worse sort of benzoin, which is dark-coloured, hard, and mixed more or less with the parings of the wood and other impurities.

The inferior sorts of benzoin are exported to Arabia, Persia and some parts of India, where they are burned, to perfume, with their smoke, the temples and houses of the inhabitants; to expel troublesome insects, and obviate the pernicious effects of unwholesome air or noxious exhalations.

Benzoin is brought for sale to the mercantile parts of Sumatra, in large cakes, covered with mats. In order to pack it in chests, it is necessary to break these cakes, and to expose the benzoin to the heat of the sun. The greater part which is brought to England is re-exported to countries where the Roman Catholic and Mahomedan religions prevail; to be there burned in the churches and temples. The exportation of benzoin from London to Magadore only has been estimated at 30,000 pounds weight per annum.

CHEMICAL PROPERTIES.—Only three solid balsams are at present known; viz. *Storax*, *Dragon's blood*, and *Benzoin*. *Benzoin* has a very agreeable odour, which is increased by heat. It has little taste. Its specified gravity is 1,092. This substance has been used in medicine for ages, and various processes have been pointed out by chemists for extracting benzoic acid from it; but the only person who has examined its properties in detail is Mr. Brande.

Cold water has very little effect on benzoin, but boiling water takes up a portion of benzoic acid.

Alcohol dissolves it when assisted by a gentle heat, and forms a deep yellow solution inclining to reddish-brown. When this solution is diluted with water, the benzoin precipitates in the form of a white powder. It is precipitated also by muriatic and acetic acids, but not by the alkalies. A few drops of sulphuric acid likewise precipitate the benzoin: but an additional quantity will re-dissolve it, and form a liquid of the colour of port wine. When equal quantities of the alcoholic solution of benzoin and sulphuric acid are mixed, a dark-pink precipitate falls. The liquid assumes a pink colour, which becomes lilac when diluted with water. Nitric acid occasions a strong effervescence, and forms a dark-red fluid with the alcoholic solution, but throws down no precipitate.

Ether dissolves benzoin with facility, and the solution, with re-agents, exhibits the same phenomena as the alcoholic.

Nitric acid acts with violence on benzoin, and converts it into an orange-coloured mass. When assisted by heat the acid dissolves the benzoin; and as the solution cools, crystals of benzoic acid gradually separate. Mr. Hatchett ascertained that by this process a quantity of artificial tannin is formed.

MEDICAL PROPERTIES AND USES.—This balsam was formerly considered to be expectorant and was esteemed for its virtues in asthma and other pulmonary affections; it is now, however, little used in practice, and is chiefly valued as yielding the *benzoic acid* which is somewhat stimulating, and imparts a pleasant flavour to other medicines.

Benzoin is also used in the preparation of what is called *court plaster*, which it sometimes renders too irritating. The mode of making it is as follows:—Five ounces of isinglass are dissolved in a pint of water. A quantity of thin black sarcenet being stretched on a frame, this solution is applied warm with a brush equally over the surface; and, when dry, the process is repeated a second or third time. It is finally brushed over with a weak solution of benzoin in spirits of wine, which communicates to it a pleasant aromatic smell.

Benzoin also enters into the composition of the following preparations:—

1. *Fumigating Pastilles.*

Take of Benzoin, 1 drachm.

Cascarilla bark, $\frac{1}{2}$ drachm

Myrrh, 1 scruple.

Oil of nutmegs } of each, 10 drops.

Oil of cloves }

Nitrate of potass, $\frac{1}{2}$ drachm.

Charcoal, 6 drachms.

Mucilage of gum tragacanth, as much as may be required, to cause the mass to adhere; after which it is to be divided and cut into the usual form.

The following is the French method of preparing pastilles:

“Prenez, Benjoin	16 parts.
Baume du Pérou sec	16
Qu'on a fait préalablement dans l'eau pour enlever tout l'acide volatil.	
Santal citrin	4
Ladanum	1
Charbon de tilleul	96
Nitrate de potasse	2

“Reduisez toutes ces substances en poudre tres fine, melez-les exactement, et faites-en, avec du mucilage de gomme adraganthe, une masse épaisse, dont vous formerez des cônes échancrés en trépied à la base, que vous ferez sécher dans un four faiblement chauffé.”

2. *Virgin's Milk.*—A spirituous solution of benzoin mixed with about 20 parts of rose water, forms a well-known cosmetic. Goulard water is also sometimes sold under this title.

3. *Friar's Balsam, Wade's Drops, Jesuit's Drops.*—These preparations are nothing more than the compound tincture of benjamin.

4. *Pectoral Balsam of Honey.*—This is merely a simple tincture of benzoin, or of tolu, and like the following, is highly stimulant and improper for those diseases for which it is usually commended.

5. *Essence of Coltsfoot*, consists of equal parts of balsam of tolu, and the compound tincture of benzoin, to which is added double the quantity of rectified spirits of wine. It is recommended for coughs and consumptions!!

Riga Balsam.—Take of alcohol or rectified spirit, eight ounces; compound tincture of benzoin, two drachms; tincture of saffron, one drachm: mix. A popular nostrum for sprains and bruises: recommended also as a *vulnerary*!

OFF. PREP.—Acidum Benzoicum. *L. E. D.*

Tinct. Benzoini composita. *L. E. D.*



Helleborus niger.

HELLEBORUS NIGER.—BLACK HELLEBORE.

CLASS XIII. POLYANDRIA.—ORDER VI. POLYGYNIA.

NATURAL ORDER, RANUNCULACÆ.—THE CROW-FOOT TRIBE.

BLACK HELLEBORE, so called from the dark colour of the root, is a perennial plant growing spontaneously on the rocky and woody mountains of many parts of Europe, especially in Austria, Carniola, Italy, and Greece, and cultivated in our Gardens as an ornamental plant, flowering in mild seasons, from December till March, whence it has obtained the name of Christmas rose. The date of its introduction is unknown; but it appears to have been cultivated in Britain by Gerard as early as 1596. In the old editions of our dispensatories, it is termed "*Melampodium*." Anticyra, now Asprospizzia, a city in Phocis, situated near Mount Oeta, was famous among the ancients for the Hellebore which it produced; it was of the best quality, and reckoned a specific for many diseases, particularly for insanity; hence arose the proverb, "*Naviget Anticyram*," send the madman a voyage to Anticyra. Thus the Roman poet:—

Danda est ellebori multo pars maxima avaris :
Nescio an Anticyram ratio illis destinet omnem.
Hor. Sat. iii. lib. ii.

"By far the largest portion of Hellebore is to be administered to the covetous: I know not whether reason does not consign all Anticyra for their use."

The root, which is the part used in medicine, consists of numerous depending fibres, issuing from a rough transverse knotty head, externally of a blackish colour, internally white or yellowish. The leaves are large, composed of five, six, or more leaflets of a deep green colour, and spring directly from the root on long cylindrical petioles, smooth and dotted with red; the leaflets are ovate-lanceolate, smooth, shining, and coriaceous, with the distal, half of each slightly serrated. The flower-stalk is a scape, six or eight inches long, erect, round, variegated with red, and supporting one or two flowers. The bractæas, or floral leaves, are ovate and indented at the edges. The calyx consists of five large, roundish concave sepals, at first white, or of a pale rose colour, deepening by age, and finally becoming green, after the impregnation of the seed. The petals are tubular, and two lipped. The filaments are numerous, from 30 to 60 in number, capillary, and supporting yellow anthers. The germens, about six or eight in number, become pods, containing many black shining seeds.

ADULTERATIONS.—It appears that the merchants of Frankfort and of Hamburg frequently substitute the roots of the *Aconitum neomontanum*, *Adonis vernalis*, *Helleborus viridis*, *Trollius europæus*, *Actæa spicata*, and some other plants, for those of *Helleborus niger*; but these may in general be distinguished by their paler colour.

QUALITIES AND CHEMICAL PROPERTIES.—The fibres of the roots, which are the parts employed, are of the size of a small quill; corrugated; of a colour approaching to black on the outside; and of a yellowish white within. Their odour is disagreeable. Both the virtues and properties of the root are impaired by keeping: but when fresh, their taste is penetrating; and though neither bitter nor very hot, it leaves a lasting impression in the mouth; and has a remarkable effect on the tongue, as observed long ago by Grew, in his work on Tastes. "The root being chewed, and for some time retained upon the tongue, after a few minutes it seemeth to be benumbed, and affected with a kind of paralytic stupor; or as when it hath been a little burnt with eating or supping any thing too hot." M. M. Feneulle and Capron have lately analysed the root, but were unable to discover any alkali in its active principle, similar to that which is yielded by the white Hellebore: a plant, however, that belongs to a very different order, notwithstanding the similarity of the common name. The following are its constituents, viz. a volatile oil, a fatty matter, a resin, wax, a volatile acid, a bitter principle, mucus, alumina, gallate of potash, acidulous gallate of lime, and a salt, with an ammoniacal base. Alcohol appears to extract its virtues most efficiently; from which it would appear, that they depend principally on its resinous part. A watery extract, also, possesses both its purgative and diuretic qualities: and its irritating properties are considerably lessened by boiling.

From the experiments of Feneulle and Capron, as detailed in the *Journal de Pharmacie*, (vii. 503,) it would seem, that the active and deleterious principle of the Hellebores is an acid contained in the oily matter. Both the *Helleborus viridis* and *hyemalis* possess similar properties to the *Helleborus niger*, only in a less degree; but the *Helleborus fœtidus* is more potent than either.

POISONOUS EFFECTS AND MORBID APPEARANCES.—That Hellebore is a violently *acrid poison*, the subjoined accounts will prove.

Experiments on animals have shown, that when administered in doses of two or three drachms to dogs, death ensues in the course of sixteen or eighteen hours. Smaller animals are killed by its exhibition in much less time: for example, ten grains of the extract introduced into the windpipe of a rabbit destroyed life in six minutes. But with this, as with many other poisons, the effects are greater when applied to serous surfaces and inserted into wounds, than when taken into the stomach.

“Six grains of powdered hellebore were sprinkled over a wound made in the interior of the thigh of a small young dog. There was no visible symptoms at the expiration of eight hours. The next day, twenty hours after the operation, the animal was lying down upon his side, and in a state of great dejection; he was quite sensible to external impressions: he could be moved like an inert mass of matter, and could not by any means keep himself on his legs. He died three hours after. No sensible lesion was perceived in the digestive canal, or in the lungs.”—*Orfila*.

Morgagni has recorded a case in which although but half a drachm of the extract was taken, it had a fatal termination in sixteen hours. The post mortem examination showed inflammation of the digestive canal, especially of the large intestines; and similar appearances were found in two cases in which this plant had been administered, through the presumptuous ignorance of a quack-doctor. The chief facts are as follows:—as communicated by M. Foray to the Société Médicale d’Emulation at Paris.

“Two persons took a decoction of this root in cyder. Three quarters of an hour after taking it, alarming symptoms were developed, without exciting suspicion of the real cause. One of the men, therefore, took another dose, when vomiting, delirium, horrible contortions, accompanied with immediate coldness supervened, and death at last ensued. On dissection, sixteen hours afterwards, the appearances in each were found precisely similar, except that in the one who took the largest quantity they were more strongly marked. The lungs were gorged with blood. The mucous membrane of the stomach was considerably inflamed, of a blackish brown colour, and reduced almost to a gangrenous state.”*

In some cases the stomach and intestines, but particularly the *rectum*, are highly inflamed,—a circumstance which will be observed in those who have died from taking the *Colchicum autumnale*, that thus, in its poisonous effects, very much resembles black hellebore. Slight congestions have also been noticed in the lungs, and the bladder has been observed to be red and thickened.

“A man, who appeared to be nearly fifty years old, being in the hospital on account of melancholia, was about to depart, when he took some extract of black hellebore. In the beginning of the night, at the seventh or eighth hour after taking it, he was attacked with sickness and pains of the abdomen, which were allayed by warm broth. About the fifth hour of the night, those affections returned, and again appeared to be relieved. He lay down an hour afterwards, having vomited two or three spoonful of a greenish matter. So quietly did he then rest, that none of the patients in the nearest beds heard him; but at the eighth hour, they were attracted to his bedside by a peculiar noise from his mouth; and found him dead. He had taken about half a drachm of the extract; a quantity which had been administered to others with impunity. He had, however, neglected to drink copiously of whey; a precaution it was customary to recommend.

MEDICAL PROPERTIES AND USES.—Before the grand discoveries which chemistry has made on the properties of metallic substances, the most violent vegetable medicines were boldly administered, and this plant has been highly extolled by Avicenna, Gesner, Klien, Milman, and others, in mania, dropsy, cutaneous diseases, and worms. As an emmenagogue, it is occasionally given with success; but this property, as well as its hydragogue virtues, are reasonably supposed to depend on its powerful cathartic effects: effects which it sometimes exerts so violently, as to be seldom prescribed; and were it expunged from the list of our materia medica, we could easily fill up the vacancy by indigenous plants of greater utility. The slender fibres of the root only are used. To produce its full effect as a purgative, the dose should be from ten grains to a scruple; but it is very seldom prescribed in substance. The most common form is that of decoction, made with two drachms of the root to a pint of water. Of this an ounce or more is given every three or four hours. The extract which is made by evaporating the decoction to a due consistence, is the basis of Bacher’s celebrated hydragogue pills, composed of extract of black hellebore, myrrh, and powdered carduus benedictus, in the proportion of half a drachm of the first two ingredients, and five grains of the last, beat into a mass, and made into pills, each weighing a single grain. These pills, which formerly obtained a place in our Pharmacopœias, in doses from one to six, three or four times a day, were strongly recommended on the continent in dropsical cases, and were believed to unite an evacuant and tonic power. Hence they were supposed particularly adapted to those cases where general debility and relaxation of the system occur. Under the hands of their inventor, they acquired so great reputation, that after a trial in the military hospitals of Paris, the receipt was purchased by the French king, and published by authority. But like many other nostrums, since their composition became known, Bacher’s pill has by no means supported the reputation which it had when kept a secret.

DOSE.—The dose of extract is from grs. iij. to ℥j; of the tincture from gtt. xxx. to ʒj. every six hours, in a mucilaginous vehicle.

OFF. PREP.—Extractum Hellebori Nigri, E.D. Tinctura Hellebori Nigri, L.E.D. olim. Tinctura Melampodii.

* Beck’s Elements of Medical Jurisprudence.



Pyrus japonica.

PYRUS JAPONICA.—JAPAN PYRUS.

CLASS XII. ICOSANDRIA.—ORDER IV. PENTAGYNIA.

NATURAL ORDER, POMACEÆ.—THE APPLE TRIBE.

1. Section of calyx, showing the insertion of the stamens and pistils. 2. One stamen and the pistils magnified.
3. Outline of a perfect leaf.
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GENERIC CHARACTER.—*Cal.* superior of one leaf, five-cleft, permanent. *Cor.* Petals five roundish, concave, larger than the calyx, and proceeding from it. *Stam.* Filaments twenty, awl-shaped, attached to the calyx, shorter than the corolla; anthers oblong, of two lobes. *Pist.* Germ inferior; styles five, filiform; stigmas simple. *Per.* Fruit roundish, umbilicated, with five membranaceous cells. *Seeds* two in each cell.

Leaves elliptic-oblong, sharply serrated, smooth.

The characters of this species frequently vary: sometimes having numerous petals, as a semi-double flower, but more frequently appearing with five or six. The pericarpium is seldom larger than a walnut, and rarely perfects itself in this country. A white and also a semi-double variety of this species have been obtained, so nearly coinciding in habit with the plant here figured as not to warrant their being made distinct species.

The *Pyrus Japonica* is a native of Japan, and was introduced into this country by Sir Joseph Banks in 1796. It may be considered to rank among some other shrubs from that country, as the most ornamental which are cultivated in our gardens. It possesses in itself a peculiar recommendation, from its blooming at a season when few other flowers appear. Such flowers as present themselves before Spring has put on her verdant robes are viewed with peculiar pleasure and delight, and in a manner invite us to look forward for that season when Nature appears clothed in her loveliest hues. The flowers of the *Pyrus Japonica* are of a beautiful red, and are in great abundance over the whole plant, with the exception of the last year's shoots: the oldest branches of the tree will throw out spurs with flowers; they begin to make their appearance early in March, before the leaves, and continue in perfect beauty until near the end of April: throughout the summer a few blooms will occasionally appear. This plant is with good effect frequently trained against walls or trellis-work, and forms a desirable shrub, to disperse among open plantations and shrubberies, particularly if intermixed with the white variety; as they are proved to endure the severity of our winters. These shrubs are of free growth; and when planted against walls, pruning is necessary: some of the luxuriant young shoots may be removed without injury to the plants. This species of *Pyrus* is easily propagated, either by layers in the spring, or by cuttings in the autumn; and it adapts itself to almost any soil: in common garden earth it grows freely; and is found to flourish in the environs of London.*

In December, says the 'Mirror of the months,' the meadows are still green—almost as green as in the spring, with the late sprouted grass that the last rains have called up, since it has left off, and the cattle called home to enjoy their winter fodder. The corn-fields, too, are bright with their delicate sprinkling of young autumn sown wheat; the ground about the hedge-rows and in the young copses is still pleasant to look upon, from the sobered green of the hardy primrose and violet, whose clumps of unfading leaves brave the utmost rigour of the season: and every here and there, a bush of holly darts up a pyramid of shining leaves and brilliant berries, from amidst the late wild and wandering, but now faded and forlorn company of woodbines and eglantines, which have all the rest of the year been exulting over and almost hiding it, with their quick-growing branches and flaunting flowers. The evergreens, too, that assist in forming the home inclosures, have altogether lost their sombre hue which they have until lately worn—sombre in comparison with the bright freshness of spring and the splendid variety of autumn: and now, that not a leaf is left around them, they look as gay by the contrast as they lately looked grave.

Now, the high-piled turnip cart is seen labouring along the narrow lanes, or stands ready with its white load in the open field, waiting to be borne to the expectant cattle, that are safely stalled and sheltered for the season; while, for the few that are still permitted to remain at the mercy of the inclement skies, and to make their unwholesome bed upon the drenched earth, the moveable hay-rack is daily filled with its fragrant store, and the open shed but poorly supplies the place of the warm and well-roofed stalls of the straw-yard.

Now, too, some of the younger members of the herd (for the old ones know by experience that it is not worth the trouble,) seeing the tempting green of the next field, through the leafless hedge-rows, break their way through and find the fare as bitter and as scanty as that which they have left.

Now the hazels throw out their husky blossoms from their bare branches, looking, as they hang straight down, like a dark rain arrested in its descent; and the furze flings out its bright yellow flowers upon the otherwise bare common, like little gleams of sunshine, and the moles ply their mischievous night-work in

the dry meadows; and the green plover "whistles o'er the lea," and the snipes haunt the marshy grounds; and the wagtails twinkle about near the spring heads; and the larks get together in companies, and talk to each other, instead of singing to themselves; and the thrush occasionally puts forth a plaintive note, as if half afraid of the sound of its own voice; and the hedge-sparrow and tit-mouse try to sing; and the robin does sing still, even more delightfully than he has done all the rest of the year, because it now seems as if he sang for us rather than for himself. . or rather, to us, for it is still for his supper that he sings, and therefore for himself.

Not so with the kitchen-garden; that, if it has been duly attended to, is full of interest this month, especially by comparison with the scenes of decay and barrenness by which it is surrounded. The fruit and trees on the walls are all nailed out with the most scrupulous regularity; and by them, as much as by anything else, you may now judge of the skill and assiduity of your gardener. Indeed, this is the month of all others in which his merits are put to the test, and in which they often seem to vie with those of nature herself. Anybody may have a handsome garden from May to September; but only those who deserve one can have it from September to May. Now, then, the walls are all covered with their wide-spread fruit-fan; the celery beds stretch out their unbroken lines of fresh-looking green: the late planted lettuces look trim and erect upon the sheltered borders where they are to stand the winter and be ready, not to open, but to shut up their young hearts at the first warm breath of spring; the green strings of autumn-sown peas scarcely lift their tender downward turning stems above the dark soil; the hardy endives spread out their now full grown heads of fantastically curled leaves, or stand tied up from the sun and air, doing the penance necessary to acquire for them that agreeable state of unhealthiness without which our squeamish appetites could not relish them; the cauliflower, brocoli, and kale plants, maintain their unbroken ranks; and, finally even the cabbages themselves contrive to look genteel.

As to the flower-garden this month, it looks a picture either of pleasantness or poverty; according to the degree of care and skill which has been bestowed upon it: for though nature wills that we should enjoy her beauties during a certain period of the year, whether we use any efforts towards the obtaining of them or not, yet she lays it down as a general principle, in regard to her gifts, that to seek them, is at once to deserve, to have, and to enjoy them; and that, without such seeking we shall only have just enough to make us sigh after more.

THE FLOWER FESTIVAL AT GENGANO.

How shall I describe the first glance into the street—that bright picture as I then saw it? The entire, long, gently ascending street was covered over with flowers; the ground colour was blue: it looked as if they had robbed all the gardens, all the fields, to collect flowers enough of the same colour to cover the streets; over these lay in long stripes, green, composed of leaves, alternately with rose-colour; at some distance from this was a similar stripe, and between this was a layer of dark red flowers, so as to form, as it were, a broad border to the whole carpet. The middle represented stars and sun, which were formed by a close mass of yellow, round, and star-like flowers; more labour still had been spent upon the formation of names—here flower was laid upon flower, leaf upon leaf. The whole was a living flower-carpet, a mosaic floor, richer in pomp of colouring than any thing which Pompeii can show. Not a breath of air stirred—the flowers lay immovable, as if they were heavy, firmly-set precious stones. From all windows were hung upon the walls large carpets, worked in leaves and flowers, representing holy pictures. Here Joseph led the ass on which sat the Madonna and the child; roses formed the faces, the feet, and the arms; gillyflowers and anemones their fluttering garments; and crowns were made of white water-lilies, brought from Lake Nemi. St Michael fought with the dragon; the holy Rosalia showered down roses upon the dark blue globe; wherever my eye fell flowers related to me biblical legends, and the people all round were as joyful as myself. Rich foreigners, from beyond the mountains, clad in festal garments, stood in the balconies, and by the side of the houses moved along a vast crowd of people all in full holiday costume, each according to the fashion of his country. Beside the stone basin which surrounds the great fountain, where the street spreads itself out, my mother had taken her place, and I stood just before the satyr's head which looks out from the waters.

The sun burnt hotly, all the bells rung, and the procession moved along the beautiful flower carpet; the most charming music and singing announced its approach. Choristers swung the censer before the host; the most beautiful girls of the country followed, with garlands of flowers in their hands and poor children with wings to their naked shoulders, sang hymns, as of angels, whilst awaiting the arrival of the procession at the high altar. Young fellows wore fluttering ribands around their hats, upon which a picture of the Madonna was fastened; silver and gold rings hung to the chain around their necks, and handsome bright coloured scarfs looked splendidly upon their black velvet jackets. The girls of Albano and Frascati came, with their thin veils elegantly thrown over their black, plaited hair, in which was stuck the silver arrow. Those from Villettri, on the contrary, wore garlands around their hair, and a smart neckerchief, fastened so low down in the dress as to leave visible the shoulder. From Abruzzi, from the Marshes, from every other neighbouring district, came all in their peculiar national costume, and produced altogether the most brilliant effect. Cardinals, in their mantles woven with silver, advanced under canopies adorned with flowers; monks of various orders following, all bearing burning tapers.*

* The Improvisatore, from the Danish of H. C. Anderson.



Helleborus Orientalis.

HELLEBORUS ORIENTALIS.—ORIENTAL OR TRUE OFFICINAL HELLEBORE.

CLASS XIII. POLYANDRIA.—ORDER VI. POLYGYNIA.

NATURAL ORDER, RANUNCULACÆ.—THE CROW-FOOT TRIBE.

Fig. (a) represents a perfect flower, with the petals removed; (b) a single petal, to show three of the nectaries at its base; (c) the germens attached to the receptacle.

WE have great pleasure in being able to present our readers with a correct figure of this rare plant, made from the most admirable drawing by Mr. Ferdinand Bauer for the *Flora Græca*, and published in vol. i. fasc. v. of that celebrated work. The plant, was gathered on Mount Athos, Delphi, and Mount Olympus in Anatolia, on the hills, near Thessalonia, and abundantly near Constantinople, by Dr. Sibthorp, formerly Professor of Botany in the University of Oxford. Tournefort justly supposes his *Helleborus niger orientalis*, *amplissimo folio*, *caule præalto*, *flore purpurascente*, to be the Hellebore of the ancients, as he found it in the island of Anticyra, famous for the production of this medicine.

The root is perennial, somewhat fleshy, black externally, and surrounded with many very long, dark-coloured, simple fibres. The stem is very tall, round, smooth, leafy, and of a purplish colour. The radical leaves are stalked, very large, pedate, composed of about nine elliptic, oblong, serrate, pointed lobes, of a dark green colour on the upper surface, and paler, hairy, and veined underneath; those on the stem numerous, on roundish, smooth foot-stalks, channelled above, sheathing at the base, and slightly hairy below. The flower-stalks, which are axillary or terminal, and accompanied by numerous fringed, serrated, leafy bracteas, do not rise above the leaves, but are branched, bearing five or six drooping, concave flowers, of a greenish or whitish colour, turning purple as they fade. The petals are five, roundish, concave, and persistent; the nectaries are numerous, placed in a circle within the petals, deciduous, each of one leaf, tubular, compressed, with a reflected lip, and their base attenuated. The stamens are numerous, thread-like, with oblong anthers. The germens, which are five, of an oblong shape, terminated by the styles, become beaked pods, containing several seeds.

MEDICAL PROPERTIES AND USES.—The roots of this species of Hellebore, formerly called *Melampodium* from their black colour, are acrid and violently cathartic. They have been supposed to be useful in maniacal cases, epilepsy, paralysis, hypochondriasis, dropsies, and a variety of other diseases; but as the genuine oriental plant may not be easily accessible to us, it is useful to know that the *Helleborus viridis* is the safest substitute for it, though less active; while the *H. fetidus*, which has sometimes been used by fraud or mistake, is more violent and dangerous. We learn from Mr. Curtis, in his *Flora Londinensis*, that great quantities of the roots of *H. viridis* are annually sent up from the country, and used for the true black Hellebore. It has also been conjectured that their qualities are the same; for this species is more nearly allied to the ancient Greek plant than the *Helleborus fetidus*. A full account of the Medical properties and uses of Hellebore has been already given, under ART. *Helleborus niger*, which, till lately, was supposed to be the drug used by the ancients.*

We subjoin the following extract from a work on Poisons, by Mr. A. S. TAYLOR, Lecturer on Chemistry, &c. at Guy's Hospital, a gentleman whose valuable productions, indefatigable research, and important discoveries, have conferred great usefulness on medical science:—

"The Narcotico-irritant poisons are derived from the vegetable kingdom. Their effects on the body are of a mixed character, since both the brain and alimentary canal are liable to be affected by them.

In order to prove fatal, they require to be exhibited commonly in large doses. The symptoms in most cases appear in about an hour; but sometimes they may be delayed for many hours. This has been especially noticed with regard to poisonous mushrooms. The symptoms commonly observed are vertigo, coma, delirium, paralysis or convulsions: such at least are the effects resulting from Monkshood (*Aconite*) and Deadly Nightshade (*Belladonna*.) These poisons have in general a strong and well-marked taste, so that they cannot be criminally administered without suspicion being excited, or without detection. Murder by Monkshood has been accomplished by the criminal substitution of the leaves of this plant for other vegetables at a meal.

* Medical Botany.

The strychnos tribe, including *Nux Vomica*, has a specific action on the spinal marrow, producing tetanus and convulsions, but rarely coma or delirium. Squills and Foxglove (*Digitalis*) produce symptoms of narcotism, *i. e.* they affect the brain; but these symptoms are commonly preceded by vomiting, with violent pain in the stomach and bowels, indicative of an irritant action.

Thus, then, there is great variety in the effects produced by this class of poisons, and the same may be said of the post-mortem appearances in the bodies of those who have been killed by them. In some instances the stomach and intestines are inflamed: in others not. Where the person has died under symptoms of narcotism, traces of cerebral congestion are occasionally found; but cases of fatal poisoning by these vegetable substances are so rare, that we have yet much to learn respecting the morbid changes which they produce.

Orfila and other toxicologists have remarked that the narcotic and irritant effects of these vegetable substances seldom appear in the same case. The symptoms are those either of narcotism or irritation, and they sometimes alternate: when taken in *large* doses, they seem to act principally as *Narcotics*, in *small* doses, as *Irritants*.

Analysis.—Most of the narcotico-irritant poisons owe their deleterious effects to the presence of an alkaloidal principle similar to morphia, and susceptible of insulation by complex chemical processes. There is, however, considerable difficulty in extracting these alkaloids from the respective vegetables; and when extracted, the chemical differences among them, in respect to the action of tests, are very slight. Indeed, better evidence of the poisonous nature of a poisonous liquid would commonly be derived from the exhibition of a portion of it to animals, than from the application of chemical tests. In a medico-legal point of view, there are, with few exceptions, no chemical tests for these poisons, when they are mixed up with organic liquids, upon which reliance can be placed. When the vegetable has been used, either in the shape of seeds, leaves, berries, or root, then good evidence may be sometimes procured by searching with or without the aid of a good microscope for the botanical characters of the plant; these parts of the plant, from their indigestible nature, may be found in the vomited matters or evacuations during life, or in the alimentary canal after death. The broken leaves may be separated by washing, as they are quite insoluble in water: they may be therefore easily collected, dried on mica and examined by the microscope, which, under the hands of a good botanist, may thus reveal the nature of the poison. This source of evidence will, however, often fail, owing to the poison having been taken, in the form of extract, infusion or decoction, or even, in some instances, owing to the digestive action of the stomach itself on the vegetable matter. The active alkaloidal principle is no doubt absorbed in all cases of poisoning; but it has not yet been satisfactorily detected by chemical processes in the blood or secretions.

Some years since, I was consulted in a case in which there was hardly a medical doubt that the life of a person had been destroyed by the decoction of a narcotico-irritant vegetable. The fact, however, could not be clearly established. It is much to be regretted, that post-mortem examinations are not enforced as an indispensable part of a coroner's inquest, in all instances of narcotico-irritant poisoning. There is no department of toxicology so defective as this; only a few pathological characters have been observed in cases derived almost exclusively from foreign authorities; and in regard to the effects of some of these poisons on the human body nothing whatever is known except that they destroy life. The acquisition of any sort of medical experience on these points, in England, is unfortunately left to be a matter of the purest accident; and yet on a trial for murder by any of these poisons, our law-authorities would expect that a witness should be perfectly conversant with their effects on the body, while the only possible source of acquiring such knowledge in a satisfactory manner, is entirely cut off from the medical profession! Some well-informed coroners have endeavoured, in performing their duties, thus to benefit the public; but the generality of them act on the principle that the inquest in such cases is merely to record the fact of death from an *external* view of the body.

Treatment.—The treatment of a case of narcotico-irritant poisoning consists in promoting early vomiting by emetics, or in drawing off the contents of the stomach by the stomach-pump. If there should be reason to suppose, from the seat of pain, that the poison has descended into the bowels, then laxative enemata may be used. Recoveries have taken place when the poison has been thus removed, even although formidable symptoms had set in. Cold effusion, or stimulants, may occasionally be required: the patient, if inclined to sleep, should always be kept roused. There is no certain chemical antidote to any of these poisons. Tannin precipitates all the alkaloids: hence it has been strongly recommended as an antidote. No injury can follow its exhibition: and a decoction of black tea will be a good substitute for oak-bark or galls. Coffee may be used as a stimulant. With respect to electricity, Ducros found that the negative current was beneficial to animals poisoned by strychnia or brucin; while the positive current produced convulsions, and accelerated death. (Canstatt, *Jahresbericht*, 1844, v. 297.) The narcotico-irritants appear to have no corrosive properties:—some of them give rise to a sense of burning heat in the throat and stomach,—this is a local action entirely independent of chemical change; it is especially witnessed in the case of monkshood."



Anothera missouriensis.

ÆNOTHERA MISSOURENSIS.—LARGE-FRUITED ÆNOTHERA.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ONAGRARIÆ.—THE EVENING PRIMROSE TRIBE.

PERIANTH one-leafed, superior, deciduous: tube cylindrical, erect, long, deciduous: border four-cleft; the segments oblong, acute, bent down. Petals four, obcordate, flat, inserted into the interstices of the calyx. Filaments eight, awl-shaped, curved inwards, inserted into the throat of the calyx, shorter than the corolla. Anthers oblong, incumbent. Germ cylindrical, inferior. Style filiform, the length of the stamens. Stigma four-cleft, thick, blunt, reflex. Capsule cylindrical, four-cornered, four-celled, four-valved, with contrary partitions. Seeds very many, angular, naked. Receptacle columnar, four-cornered: with the angles contiguous to the margin of the partitions.

SPECIFIC CHARACTER. Leaves lanceolate, veined. Petals serrated. Capsule elliptic, angular.

Stems branched, prostrate, and of a fine purple; the leaves are seated close on the stem: the flowers appear at each joint; the petals are supported on a long tube somewhat resembling *longiflora*; calyx spotted; the capsules are seated close to the leaves.

This interesting dwarf plant has been described as a biennial; and though it will be found to live and flower for more than two years, yet its existence is but of short duration; it would therefore better support the appellation of a short-lived perennial. The present plant and the *Æ. macrocarpa* have been imagined by some persons to be the same; the flowers of both are similar in appearance and colour, but the straggling habit of growth and the narrowness of the leaves of the *missourensis* will mark a sufficient distinction. During the months of July and August the prostrate branches of the *missourensis* are abundantly decorated by very numerous and luxuriant yellow flowers, which become truly conspicuous from their size, and particularly so from their being produced on a plant of such humble growth. By intermixing this species with the plant *Æ. cæspitosa* (a plant similar in its habit of growth, but bearing a white flower) a pleasing and beautiful group for ornamenting small beds on a lawn or in a flower-garden may be obtained. The careless mixture of the blooms appearing above the dark green leaves, through which the elegantly twining purple stem is casually seen, produces a beauty that every lover of the flower-garden must view with admiration. The rock-work of a garden will also receive a considerable additional charm by a judicious decoration with these elegant little trailing plants. These species of *Enothera* require an earth tolerably rich: mellow loam, rotten manure, and decayed leaves will form a good composition. As there is no certainty of raising a supply by separating the roots, it is advisable to increase these plants by cuttings, which if planted in an earth somewhat sandy, placed under a hand-glass, and partially shaded, will readily strike: they should be kept in pots under the protection of a frame during the first winter, after which they will thrive well in the open border. This species was discovered by Mr. Nuttall growing freely near the banks of the Missouri.*

From Dr. Lardner's Lectures delivered at New York, we select the following extraordinary and perfectly original observations upon the influence of the moon:—

LUNAR INFLUENCES.—On a former occasion I examined the question respecting the supposed influence of the moon upon the weather, and demonstrated that so far as actual observation has hitherto afforded grounds for reasoning, there is no discoverable correspondence between the lunar changes and the vicissitudes of rain and drought which can justify or in any degree countenance the popular belief so generally entertained as to dependence of change of weather upon the changes of the moon.

But meteorological phenomena are not the only effects imputed to our satellite; that body, like comets, is made responsible for a vast variety of interferences with organized nature. The circulation of the juices of vegetables, the qualities of grain, the fate of the vintage, are all laid to its account: and timber must be felled, the harvest cut down and gathered in, the juice of the grape expressed, at times and under circumstances regulated by the aspects of the moon, if excellence be hoped for in these products of the soil.

According to popular belief, our satellite also presides over human maladies; and the phenomena of the sick-chamber are governed by the lunar phases; nay, the very marrow of our bones, and the weight of our bodies, suffer increase of diminution by its influence. Nor is its imputed power confined to physical or organic effects: it notoriously governs mental derangement.

* Flora Conspicua.

If these opinions respecting lunar influence were limited to particular countries, they would be less entitled to serious consideration; but it is a curious fact that many of them prevail and have prevailed in quarters of the earth so distant and unconnected, that it is difficult to imagine the same error to have proceeded from the same source. At all events, the extent of their prevalence alone rendered them a fit subject for serious investigation and I propose at present to lay before you some of the principal facts and arguments bearing on these points, for the collection of which we are mainly indebted to the industry and research of M. Arago.

A large volume would be necessary to analyze all the popular opinions which refer to the supposed lunar influences. We shall confine ourselves therefore to the principal of them, and shortly examine how far they can be reconciled with the established principles of astronomy and physics.

The Red Moon.—It is believed generally, especially in the neighbourhood of Paris, that in certain months of the year, the moon exerts a great influence upon the phenomena of vegetation. Gardeners give the name of *Red Moon* to that moon which is full between the middle of April and the close of May. According to them, the light of the moon at that season exercises an injurious influence upon the young shoots of plants. They say that when the sky is clear, the leaves and buds exposed to the lunar light redden and are killed as if by frost, at a time when the thermometer exposed to the atmosphere stands at many degrees above the freezing point. They say also that if a clouded sky intercepts the moon's light, it prevents these injurious consequences to the plants, although the circumstances of temperature are the same in both cases.

Any person who is acquainted with the beautiful theory of dew, which we owe to Dr. Wells, will find no difficulty in accounting for these effects, erroneously imputed to the moon. If the heavens be clear and unclouded, all substances on the surface of the earth which are strong and powerful radiators of heat, lose temperature by radiation, while the unclouded sky returns no heat to them to restore what they have lost. Such bodies, therefore, under these circumstances, become colder than the surrounding air, and may even, if they be liquid, be frozen. Ice, in fact, is produced, in the warm climates, by similar means. But if the firmament be enveloped in clouds, the clouds, having the quality of radiating heat, will restore by their radiation, to substances upon the surface of the earth, as much heat as such substances lose by radiation; the temperature, therefore, of such bodies will be maintained at a point equal to that of the air surrounding them.

Now the leaves and flowers of plants are strong and powerful radiators of heat; when the sky is clear they therefore lose temperature and may be frozen; if, on the other hand, the sky be clouded, their temperature is maintained for the reasons above stated.

The moon, therefore, has no connection whatever with this effect; and it is certain that plants would suffer under the same circumstances, whether the moon is above or below the horizon. It equally is quite true that if the moon is above the horizon, the plants cannot suffer unless it be visible, because a *clear sky* is indispensable as much to the production of the injury to the plants as to the visibility of the moon; and, on the other hand, the same clouds which veil the moon and intercept her light give back to the plants that warmth which prevents the injury here adverted to. The popular opinion is therefore right as to the *effect*, but wrong as to the *cause*; and its error will be at once discovered by showing that on a clear night, when the moon is new, and therefore not visible, the plants may nevertheless suffer.

Time for felling Timber.—There is an opinion generally entertained that timber should be felled only during the decline of the moon; for if it be cut down during its increase, it will not be of a good or durable quality. This impression prevails in various countries. It is acted upon in England, and is made the ground of legislation in France. The forest laws of the latter country interdict the cutting of timber during the increase of the moon. M. Auguste de Saint Hilaire states that he found the same opinion prevalent in Brazil. Signor Francisco Pinto, an eminent agriculturist in the province of Espirito Santo, assured him, as the result of his experience, that the wood which was not felled at the full of the moon was immediately attacked by worms, and very soon rotted.

In the extensive forests of Germany, the same opinion is entertained and acted upon with the most undoubting confidence in its truth. Sauer, a superintendent of one of these districts, assigns what he believes to be its physical cause. According to him, the increase of the moon causes the sap to ascend in the timber: and, on the other hand the decrease of the moon causes its descent. If the timber, therefore, be cut during the decrease of the moon, it will be cut in a dry state, the sap having retired; and the wood, therefore, will be compact, solid, and durable. But if it be cut during the increase of the moon, it will be felled with the sap in it, and will therefore be more spongy, more easily attacked by worms, more difficult to season, and more readily split and warped by changes of temperature.

Admitting for a moment the reality of this supposition concerning the motion of the sap, it would follow that the proper time for felling the timber would be the new moon, that being the epoch at which the descent of the sap would have been made, and the ascent not yet commenced. But can there be imagined in the whole range of natural science, a physical relation more extraordinary and unaccountable than this supposed correspondence between the movement of the sap and the phases of the moon? Assuredly theory affords not the slightest countenance to such a supposition; but let us inquire as to the fact whether it be really the case that the quality of timber depends upon the state of the moon at the time it is felled.



Rhododendron Arborescens.

RHODODENDRON ARBOREUM.—INDIAN-TREE ROSE-BAY.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ERICÆÆ.—THE HEATH TRIBE.

Fig. (a) represents the pistil; showing the germ, style, and stigma.

STEM twenty feet in height; branches dichotomous, ascending. Leaves at the end of the branches, ovate-lanceolate, on short petioles, bright green on the upper surface, downy beneath; midrib strong, much veined. Flowers deep crimson, from ten to twenty in clusters at the extremity of the branches. Calyx permanent, small, five-cleft. Corolla bell-shaped, dotted in the throat, lobed. Stamens ten, shorter than the corolla, falling with it. Anthers oblong. Germ superior, cylindrical, white, downy.

This magnificent shrub is a native of the Nepal mountains, and was introduced into this country in 1817. In the *Flora Exotica* it is said to have been first discovered by Captain Hardwicke on a tour to Sireenagur in 1796, growing in the mountainous tract called the Sewalic Chain which separates the plains of Hindostan from the Himmaleh mountains; it is called by the natives the *Boorans*. Its wood is used for making stocks of matchlocks, or common muskets of Hindostan.

This species, upon its first introduction, was treated as a hothouse plant; but it is now fully proved to bear the severity of our winters. Sir James Edward Smith, P.L.S., has a specimen in his garden which has stood in the open ground four years; and it has been of late treated as a hardy tree in many collections.

Placed alone upon a lawn, this shrub will appear to great advantage; or mixed with the purple and pink hues of the various American species of this genus, its deep crimson blossoms will appear with additional splendour. Beautiful as this shrub is, it was rarely to be met with until within these few years; but as it is now more generally dispersed, and as it flowers early in the summer, there is reason to expect that the seeds may be perfected in this country, though probably it may be propagated by layers, like the other species of *Rhododendron*.*

Mr. Moore quotes a passage from Tournefort, in his notes to Lalla Rookh, informing us that about Trebizond there is a kind of *Rhododendron*, on the flowers of which the bees feed, and that their honey drives people mad:—

“E'en as those bees of Trebizond,—
Which from the sunniest flowers that glad
With their pure smile the gardens round,
Draw venom forth that drives men mad.”

It is an interesting amusement (says an admired Author,) to be able to trace in the productions and forms of the vegetable world a certain resemblance, a somewhat of a family likeness, to animated beings, and in fact not only to these, but a resemblance also to various inanimate objects of familiar acquaintance. The subject has often occupied our thoughts, and its consideration in this place may be an occupation not altogether of an uninteresting nature.

Although, to our recollection at least, the subject has not received a formal notice on any previous occasion, the resemblance of flowers to other objects could not escape recognition, and the multitude which have received their titles from these similarities abundantly testifies to that effect. The enumeration of a few of these well-known names will immediately remind the reader of the circumstance. The Turk's cap from a fancied resemblance to that portion of the apparel; the snap dragon, from its similitude to a dragon's mouth; the monk's hood, the bell-flower, the trumpet-flower, the star-worts, the cock's-combs, prince's-feathers, heart's-ease, lion's-tail, satin flower, and many others, the pride of every cottage garden. These all wear some resemblance to the objects from whence they derive their title. But it would be to waste our time to enter into further detail upon things of such common occurrence; the reader, if he pleases, can extend the list at his will, and make his own comments. We shall therefore consider principally the rarer and more striking instances of the display of this mimic faculty to be found in the vegetable world; and the singularities thus presented to our notice are well deserving of a little close attention.

We may premise, however, and in this the reader will probably anticipate us, that instances are of most familiar occurrence in which man has imitated the works of nature, which should not be confounded with our present subject. Thus portions of the order of architecture, and an infinity of the decorations, utensils, weapons, &c. of all ages, find their originals in the productions of the forest and field. It would be absurd

to call these cases 'vegetable mimicries.' Again, let not the term under which we have chosen to collect these curiosities be mistaken; it is not, of course, taken to signify that flowers, &c. have the power of conforming themselves to the shape or appearance of other objects; it is intended simply to convey the singular fact, that nature *repeats* in them some of the forms she has ascribed to other members of her great family—any correspondence between other forms and appearances, and the works of man, being in many cases a mere coincidence, and in more not a copy, but a text.

Every one has heard of the columbine—not the stage character, but the homely flower of our gardens. It has received its name from a Latin word, *columba*, a pigeon, from the fancied resemblance of a part of its flower to the neck and body of that bird, while the lateral petals represent its wings; a cluster of such flowers being conceived to present something of the appearance of a brood of young pigeons fluttering around their nest. The larkspurs are as well known as the columbine. The bee-larkspur has the appearance of a bee busily seeking its food in the centre of the flower—a contrivance which no doubt acts the part of a scarecrow; the mimicry being so perfect, as to deter the winged robber from his prey, by the appearance of its being preoccupied. The side-saddle flower tells its own tale. A variety of the tulip tribe, called the parrot tulip, has its petals broken up into shreds, and folded so as to resemble the crest of a parouet. A greenhouse-tree well known in the vicinity of the metropolis, when in flower, has the very peculiar appearance of there being smooth pieces of red coral stuck over its branches, upwards of an inch in length; it is hence called the vegetable coral-tree. It is a species of *Erythrina*; it is only upon a close scrutiny that the cheat is discovered; and we find that the appearance is produced by the folded scarlet flowers of the plant. Another species of the same tribe bears a flower which in colour and form strongly resembles a cock's-comb. Then my fair readers will not be much puzzled to declare what article of their adornments the drooping flowers of the fuchsia resemble. The little wild convolvulus, which twists round the hedge-spray in its brilliant pink and white streaks, reminds us of the pretty shells which spangle our sea-shores: while the sunflower lifts up his golden face, an apt emblem of his burning prototype: and the *Calceolarias* bring to our remembrance the good old leathern purses of an ancestral generation: and the centre of the impudent jonquil perpetuates the memory of the old-fashioned teacups devoid of handles. Then the sweet pea, and many another *Papilionaceous* flower, bears the image of the painted butterfly, which, from the slenderness of the stalk, seems to be on the wing. *Papilio* is the Latin word for this insect. And the *Tropæolum tricolor* has a flower which seems as if it had originally suggested the idea of the cornucopia.

But the *Tropæolum canariense* or *peregrinum*, the canary-bird creeper, is the favourite mimic of the day. This plant is a native of South America, and was supposed on this account to require the careful treatment of a tropical or greenhouse plant. It was discovered, however, by Mrs. Loudon, that it would bear the exposure of our climate; and since that period, it has been successfully cultivated in the open air, and is rapidly becoming as common in every cottage window and plot as the convolvulus or any of the ordinary creepers. The first few plants acquired publicity at the gates of the Kensington Gardens, where they were displayed, and still are, in the greatest luxuriance. At a certain stage in the expansion of this pretty flower, the image of a canary is almost as perfect as if it had just left the modeller's hand; the head is partly bent down, and is supported upon a delicate little neck, which joins the body of the bird, while the fringed petals admirably mimic the feathers of the canary, and the canary-yellow colour considerably heightens the resemblance. When the flower is further expanded, the similarity in a great measure disappears.

Some of the *Proteaceous* plants have beautiful flowers resembling tinted feathers, others have leaves fringed with long hairs, so as to resemble the plumes of birds. The leaves of some magnoliaceous trees are strikingly like the back of a greatcoat—the waist, arms, and tail being all figured. Many other leaves resemble adders' tongues, harts' tongues, spears, stags' horns, hearts, hair, &c.

But of all mimic plants, none surpass the orchid race, of which Dr. Lindley thus writes:—'Some of these plants are so different from others, as to make one almost doubt whether they belong to the vegetable world. If the Brahmins had been botanists, one might have fancied they took their doctrine of *metempsychosis* from these productions. In the genus *Oberonia* and *Drymoda* Pythagoras would have found a living evidence of animals transmuted into plants.' Even those minute orchids which require the use of the microscope for their development, wonderful to relate, agree with the larger ones in the possession of this strange attribute.

Our own country possesses some of these plants, which are well known for their mimic powers. The fly-orchis and the bee-orchis both represent those insects. In the latter case, the resemblance is quite marvellous: there is to all appearance a little yellowish flower, upon which a bee seems resting, and plunging his long proboscis into its centre; the legs and wings of the insect are faithfully delineated, and the fidelity of the imitation is enhanced by the bee being of a different colour to the rest of the flower. A cluster of such flowers look just as if a swarm of bees had alighted one on each flower. One of the *Oberon* genus is called the man-orchis, or the *Anthropophora*, from its close resemblance to the original. The 'butterfly plants' bear flowers which wear the form of that giddy insect. And, last of the European orchids, the lizard-orchis is the most strange of all. Few persons can form an adequate idea of this curious flower who have not seen it: it represents the neck and head of a lizard; it portrays the long under-jaw, the gaping mouth, the marked head, and even the eye of the reptile, which seems projecting his hideous head and neck from the centre of the flower.



Lactuca virosa.

LACTUCA VIROSA.—STRONG-SCENTED LETTUCE.

CLASS XIX. SYNGENESIA.—ORDER I. POLYGAMIA.

NATURAL ORDER, CICHORACEÆ.

Fig. (a) represents a floret with the five united anthers, somewhat magnified; (b) a single akenopsis with the pappus.

THIS is a biennial plant; a native of Britain, and other parts of Europe: occurring chiefly in dry warm hedges, and waste grounds, where the soil is calcareous. We perceived it (says Professor Burnett,) in the hedges about Kilburn, on the road to Harrow; in Maiden-lane, near Copenhagen House; at Kingston-bottom, near Coombe Wood, Surrey, and other places near London.

The stem is somewhat woody, rising from two to six feet high; it is erect, slender, very slightly prickly below, smooth above, round, paniced, and thinly clothed with leaves. The leaves are alternate, glabrous, toothed, undivided at the base, and spreading; the cauline ones amplexicaul, sinuate, sometimes lobed, with the midrib armed with short spines on the under side. The bractæas, or floral leaves, are cordate, and pointed. The flowers which expand only in bright sunny mornings, are small, compounded, of a sulphur-yellow colour, and appear in terminal panicles, in August and September. The involucre or calyx is nearly cylindrical, and composed of numerous pointed, imbricated, unequal, flat scales, with membranous edges. The inflorescence is compound, imbricated, and uniform; the florets numerous, perfect, equal, monopetalous, ligulate, truncated, and four or five-toothed. There are five very short capillary filaments, having the anthers united into a cylindrical tube. The germen is nearly ovate, supporting a slender style, longer than the stamens, with two reflexed stigmas. The fruit is an obovate akenium or rather akenopsis surmounted with the stipitate pappus, which is fugacious. The seeds are solitary, erect, and exalbuminous: with the radicle taper and inferior.

The systematic name, *Lactuca*, from *lac*, milk, is obviously expressive of the milky juice with which the plants of this genus generally abound. *Virosa*, poisonous, the trivial name, alludes, no doubt, to its acrid and deleterious properties.

The leaves and stem of this plant abound with a milky juice, which may be collected in great abundance, just as it is beginning to flower: in the same manner as that recommended by Mr. Jeston, of Henly-upon-Thames, for English opium. Sir J. Hill recommends it to be practised in the month of April, which is certainly too early: and Dr. Todd Thomson says that the plant must be gathered, and the juice expressed; a plan we consider to be objectionable, as the other fluids must necessarily be mixed with the white juice: which is of a strong fetid smell, of a bitter and acrid taste, and possesses the active powers of the plant.

POISONOUS EFFECTS.—Two drachms of the watery extract were applied, by M. Orfila, to the cellular texture of the back of a dog. At the end of two days, the animal, who had only been slightly drowsy, had some vertigoes, and died seventy hours after the operation. The ventricles of the brain contained no fluid; the exterior veins of that organ were distended and injected with black blood; the lungs presented a few patches of a brownish red colour, and their texture was somewhat more dense than natural.

In a dog (says Professor Burnett,) which had been poisoned by three drachms of the extract, introduced in the stomach, *dissection* of the body threw no light on the cause of his death: and in a rabbit which died a short time after we had administered half an ounce of the expressed juice, in a fluid state, we could discover no morbid appearances whatever.

We consider this (observes Mr. Burnett,) as one of the most valuable of our native plants: the inspissated juice is a mild sedative, and if administered in proper doses, constitutes an excellent substitute for opium; when its diuretic effects, which are somewhat powerful, are not contra-indicated. It generally proves somewhat laxative; promotes gentle perspiration, and allays thirst. By the Germans its virtues are highly extolled, and they administer it in palpitation of the heart, and in intermittent fever. Dr. Collin relates twenty-four cases of dropsy; twenty-three of which were cured by taking it, in doses of eighteen grains, to three drachms, every twenty-four hours. In a dropsical case, that lately came under our care, it certainly produced a salutary action on the kidneys, and procured quiet sleep. We have also ascertained, to our own satisfaction, that it possesses another most important virtue, viz. *that of reducing the velocity of the pulse*; at the same time that it appears to increase its tone: and so remarkably efficient was its action on one patient, that three small doses of the tincture diminished the arterial impetus in the wrist from one hundred and twenty pulsations in the minute, to less than seventy; accompanied by intermissions.

Mr. A. S. Taylor, in his work on Poisons, says, "It varies much in strength. Wibmer found that *two grains* caused headache and somnolency, (Op. cit. 200.) By the smell only, it is liable to be mistaken for opium. It is but little soluble in water, and after long boiling, it forms a brown turbid solution which gives a greenish tint with sesquichloride of iron. It therefore contains no meconic acid. On examining a good specimen I have not found any trace of morphia. This shows that the odour of opium may exist in substances which do not contain meconate of morphia. Nitric acid gives a yellowish tinge to the decoction, as it does to most other vegetable solutions. It is bitter to the taste, which appears to be owing to the presence of a bitter principle called *LACTUCIN*, upon which its feeble narcotic properties probably depend. There are no tests for lactucarium further than the colour, the opiate odour with the want of solubility, and the absence of the other chemical characters of opium. In the plant, it is combined with malic acid, potash, and resin. (Fisher, loc. cit.)"

LACTUCA SATIVA.—GARDEN LETTUCE.

SPEC. CHAR. *Leaves* rounded; stem-leaves heart-shaped; stem terminating in a corymbiform panicle.

The original country of the Garden Lettuce is unknown. By some it is supposed to be an accidental variety sprung from some other species of *Lactuca*. It was cultivated in England, by Turner, in 1562, and probably much earlier. The leaves are large, milky, frequently wrinkled, usually pale green, but varying much in form and colour in the different varieties. The radical leaves are roundish, and toothed at the margin; those of the stem are obovate or heart-shaped. The stem is round, leafy, two or three feet high, and corymbiform at the top, with numerous bright yellow flowers, which appear in July.

The Garden Lettuce contains, like the other species, a quantity of milky juice; having when inspissated the dark colour, and, in some degree, the odour and taste of opium. The inspissated juice was found by Professor Pfaff to consist of 41 parts soluble in water, 7 of wax, 6 of resin, 18 caoutchouc, and 8 of loss = 80. It contains a free acid, analogous to the oxalic, but different, and a narcotic principle; but no morphia.

The Lettuce is universally esteemed as a cooling and agreeable salad; and the expressed juice has been long known to possess considerable narcotic powers. Celsus says "Somno vero aptum est lactuca, maxime æstiva, cujus cauliculus jam lacte repletus est." (Dr. Med. ii. xxxii.) The spirituous extract, under the title of *lactucarium*, has been strongly recommended by the late Dr. Duncan, in doses of from two to six grains, as a substitute for opium, in pulmonary consumption, and some other diseases.

Both the species of lettuce above described afford the lactucarium, which however, as now prepared, is not the spirituous extract but the inspissated proper juice alone; and hence differs materially from the *thyridacé* of the continental physicians, which is formed by the expression of all the juices, both the crude and elaborated saps combined with all the other secretions of the plant which pressure can force out. The true lactucarium is obtained by wounding the plants in the flowering season when their vessels are filled to repletion with proper juice, and so irritable that they often spontaneously burst or are ruptured by very slight accidental injuries. If at this season transverse scratches, or slight incisions be made through the teguments of the stems, the milky juices exude, and soon become in a slight degree inspissated, when the exudations should be scraped off with a silver spatula, and evaporated to a proper consistence at the ordinary atmospheric temperature; or if artificial heat be applied, it should not exceed 120° of Fahrenheit's scale.

The soporific effects of lettuce have long been noticed and familiarly known: the poets feigned Venus, after the death of Adonis, to have sought a bed of lettuces to soothe her grief. And Galen, who, when old, suffered much from watchfulness, found great relief from eating a lettuce at night; a practice which is commonly resorted to, with the same effect, by wakeful persons in the present day.

In the type *Cichoraceæ*, of the *Compositæ* where the *lactucæ* are found, a narcotic principle more or less prevails along with the bitter one of the allied type *Cynaraceæ*, or *Cynarocephalæ*, and which gives way in the third group the *Corymbiæ*, or *Sorymbifera*, to an aromatic and stomachic principle, as in the chamomile and tansy. By cultivation, especially by exclusion from light, these narcotic and bitter principles are regulated and modified in their developement, sometimes being increased, and sometimes lessened, according to the purpose for which the plants are intended to be used. By exclusion from light, the sap becomes only in part elaborated, and the taste and effects of the plants ameliorated, as is the case in the cultivated lettuces, endives, &c. And hence it is, that the cultivated *lactuca sativa* has not only a much less nauseous flavour, but also affords much less lactucarium than the uncultivated lettuce, and especially than the *lactuca virosa*, as shown by the comparative experiments of Schutz, who from two plants of equal weights found 56 grains of dry lactucarium were afforded by the *lactuca virosa*, while from the *lactuca sativa* he only procured 17.

Besides the *lactuca sativa*, which is our common garden lettuce, the French cultivate as dietetic plants, the palmate, the oak, and the endive leaved species; (*lactuca palmata*, *quercina*, and *intybasea*;) all of which, however, as well as our *lactuca sativa* are believed by many botanists not to be distinct species, but only permanent varieties of the *lactuca virosa*, which is esteemed the parent or original form of all.

Lettuces, unlike many other vegetables, such as the cabbage, the spinach, &c., can be grown to as great perfection in a warm as in a temperate climate, provided they be grown on rich soil, and abundantly supplied with water. Hence, says Loudon, the lettuces of Paris, Rome, and Calcutta, are as large and tender as those of London and Amsterdam.



Gladiolus Cardinalis

GLADIOLUS CARDINALIS.—SUPERB CORN FLAG.

CLASS III. TRIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, IRIDEÆ.—THE CORN-FLAG TRIBE.

Section showing the position of the stamens and pistil.

GLADIOLUS, mentioned by Pliny; supposed to have derived this name from *gladius*, a sword, alluding to the shape of the leaf. Root solid, round, covered with a brown membrane. Stem round, about two feet in height; leaves embracing the stem at bottom; flowers on the extremity of the stem on one side of it, in great numbers, of a fine scarlet, with a large white spot on each of the three upper segments of the petal: spathe green, enveloping the flower before it opens, and remaining after the flower has withered.

The beauties of this species cannot be surpassed by any in the genus; and from the root being hardy, it is rendered still more desirable. This, as well as many other bulbous roots, natives of the Cape of Good Hope, have been proved to endure the winter of this country, and thrive extremely well, by the treatment adopted by the Hon. and Rev. Wm. Herbert at Spofforth. The method of preserving the roots is to plant them in a dry south border of light open and sandy earth, and in the winter to protect them with a covering of leaves. They should be planted early in the spring, that the bulbs may mature themselves in the spot where they are to pass the winter: it is very essential that the roots be well ripened. With these precautions there is little fear of their succeeding. Where the roots are well established, they will produce stems from two to three feet in height with a profusion of flowers, which, from the opposition of scarlet and white, become truly interesting, and vie in splendour with any of the bulbous tribe.

“The passing Indian turns the admiring eye,
Smit by the glories of her crimson dye.”

This plant is readily increased by the roots, the separating of which should be done early in the spring; and it is better that the roots should remain in the border during the winter, provided it be tolerably dry, rather than be taken up. It was introduced from the Cape of Good Hope in 1790.

* It has been a favourite theme to the imagination, to fancy, or to sing, that Herbs and Flowers and Trees could sympathise with human sorrow. Thus Moschus, in his Greek Hexameter epitaph on Bion, indulges the supposition of the possible sensibility of vegetable nature:—

‘Mourn with me, ye plants! woods! now bewail!
Sigh O flowers! from your sorrowing stems,
Blush mournfully, ye Roses! Anemone!
Hyacinth! now speak in your symbol letters,
And by your floral leaves more than common
Express your tokens of grief. The beautiful singer is dead!’

So he apostrophises his lost friend:—

- - - ‘At your dissolution,
The trees threw down their fruits, and
Every flower faded.’

This seems extravagant: tho Milton has partly imitated it in his *Lycidas*. But it may have been a belief of the Greek poets, since one of their few natural philosophers, also a versifier, Empedocles, could say, ‘The first of all animals were trees; and sprang from the Earth before the Sun enriched the World, and before days and nights were distinguished,’ Plut. Plac. c. 26.—If Plato and Empedocles could teach ‘That plants are informed with a soul, and that of this there is a clear proof, for they tremble and shake: and when their branches are bent down by the woodman, they yield but to spring back again to their former uprightness, (Plut. ib.) we may believe that poets allowed them some sympathizing feelings.

Nor is this to be deemed a mere artificial affectation of singularity; for our own days have presented a living instance of such a sensibility, in one, whose feelings were those of pure nature, cherished in private, and very reluctantly disclosed. It is in Mrs. Bray’s account of the Cottage poetess, Mary Collings, a humble waiting-maid, that we have this curious instance of the effects of Flowers on the human sensitivities. When asked by her kind encourager how she came to write her Fables, Mary hesitated, blushed, and at last avowed the fact. ‘She would tell me the truth, tho she was afraid to speak of it, lest I should think her mazed. Her master had given her a slip of garden, to amuse herself with cultivating it. At length all the flower garden came under her care. When, of an evening, she was among the flower-beds, and saw them all so lively and so beautiful, she used to fancy that the flowers talked to her.’ Fables, &c. by M. Collings. The

rising poets of America also, not unpleasingly cultivate sympathies with them. The Greeks used flowers as part of their funeral tributes of regard. Thus Bion, in his Elegy on Adonis, exclaims—'Bring Adonis, however ghastly—place him between the crowns and the flowers—but since he has been dead, all the flowers have withered!' v. 74-6.

The Poet expresses also these two pretty fancies:—'But his remains have turned all things on the earth into flowers. His blood produced the Rose; and his tears, the Anemone,' v. 65. . . . The Anemone was made by the Egyptians an emblem of sickness. Hor. Ap. 1. 2. c. 8.

Turkey has not many friends of the Muses. Yet among their few ancient poets of name, some have shown a strong sense of the beauties of the Floral Creation.

Three passages of Mesîhi in his Turkish Odes imply this sensibility. 'O listen to the tale of the Nightingale, which assures us that the vernal season approaches. The Spring has formed a bower of joy in every grove, where the almond-tree sheds its silver blossoms. The groves and the hills are adorned with all kinds of flowers. A pavilion of roses, like the seat of pleasure, is raised in the garden. Who knows which of us may be alive when the fair season ends?—

'The dew glitters on the leaves of the lily like the sparkling of a bright cymitar. The dew-drops fall thro' the air on the garden of roses. O listen to me, if thou desirest to be delighted. The roses and tulips are like the blooming cheeks of beautiful maids, in whose ears hang varied gems, like drops of dew; but think not that these charms will have a long duration. Every morning the clouds shed gems over the rose-beds, and the breath of the gale is full of Tartarian musk. Yet be not neglectful of thy duty thro' too great a love of the world.—

'The sweetness of the rose-bed has made the air so fragrant, that the dew is changed to rose-water before it falls. The sky has spread a pavilion of bright clouds over the garden. Be joyous then! Be full of mirth, for the Spring season is passing away. It will not last.' Mesîhi's Ode, quoted in David's Turkish Grammar.

The Jewish Rabbis have been extravagant on this subject: for some believe that offending human souls transmigrate after death into buds and leaves.

Thus they teach: 'For certain crimes a soul goes into the leaf of a tree. The wind then rises, and, shaking it about, causes great torment. This punishment ceases when the leaf falls to the ground. Sometimes, indeed, such a soul passes from leaf to leaf thro' several leaves.' Emek Hammelech, f. 158. c. 2. Nishmath Chajim, fo 161. c. 1.

But Empedocles thought, or chose to assert, that his spirit, among its habitations after this world's grave, went into vegetables. He boldly declared: 'For I remember that formerly I was a plant, a fish, and a swift bird.' Diog. Laert. 1. 8. s. 77. The Laurel was the shrub which he pretended to have animated. So that Virgil's tale of the Myrtle bleeding and groaning as he tore off its branches: and of the voice from it, Nam Polydorus ego, (Æn. 1. 3.) was in accordance with some of the philosophic as well as popular superstitions of his day.

But however fanciful or wild these ideas and customs may be, they are evidence how eminently Vegetable nature has at all periods and in all countries affected the imagination and the feelings of mankind. It is a fair inference from the universal fact, and from the concurring impressions on ourselves that they were made on purpose to interest us, as well as to beautify our inhabited surface. But it is not an imagination—it is a sober reality to say, that wherever they have been cherished and cultivated, they have drawn the human spirit to seek and value the gentler and kinder dispositions and occupations of our very devious moveable, irascible and sturdy self-will. As these moral, intellectual, and religious results are the natural effects of the Vegetable Creation upon mankind, and appear, more or less, so much in all countries and in all ages, as to indicate that impressions of this sort are universal, we are entitled to infer that these consequences were among the purposes for which this Order of beings was created, and which they were appointed to produce. The general effects of all made things imply that the intention of the Maker was to produce them. So we may reason as to the design and ends of the Creator in His Vegetable classes. They increase our knowledge of Him; they are the pledges of His affection for His human race, and gentle attractions of our sensibilities to Him; they are the great sources of our subsistence, conveniences and improvements; they are the basis of all animal nutrition; they furnish our most constant gratifications and purest pleasures they tend to link our kind feelings with each other, by the sympathising admiration which their beauties excite; the cultivation they require is our most virtuous and beneficial occupation; and their serviceable properties are so arranged as to compel us to this useful cultivation, by their produce being made to arise from it. Their operation on our intellectual faculties and moral emotions, is likewise that of a soothing melioration which increases as our mind advances in its progressive civilization. All the beautiful thoughts and sentiments which poetry has breathed in every age, in praise of verdant or floral nature, and of the rural life, are the expressed homage of the heart to the charms and utilities of the Vegetable Creation, and are so many undesigned but implied encomiums on its invisible Author, for planning and ordaining it. Whatever we may mean, or whatever phrases we may use, we cannot commend nature without praising Him. The panegyric flies immediately from the insensate beauties we may admire, to the Mind which designed them and to the Power which produced them.



Helleborus fatidus.

HELLEBORUS FÆTIDUS.—FÆTID HELLEBORE. BEAR'S-FOOT, OR SETTER WORT.

CLASS VIII. POLYANDRIA.—ORDER VI. POLYGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

Fig. (a) represents the stamens, with the situation of nectariferous petals, (b) the capsules.

THIS is an evergreen perennial plant, growing naturally in many parts of Britain, on pastures and in thickets, particularly on a calcareous soil. According to Sir James E. Smith, it grows abundantly on the castle hill at Castle-Acre, Norfolk; and Gerard, who lived in the 16th century, says that it was wild in his time in many woods and shady places in England. Sir William Hooker, in his *Flora of Scotland*, states, that it occurs also plentifully on the banks of the Clyde at Blantyre Priory; on old walls at Barncluish, in the vicinity of Glasgow; and between Anstruther and Kepply, near Edinburgh; but that it is scarcely indigenous. It is a well-known plant in gardens; flowering in March and April.

The root is small, bent, and surrounded by numerous dark-coloured fibres; the stem rises to about two feet in height; towards the bottom it is strong, round, naked, and marked with alternate cicatrices, the vestiges of former leaves; is divided, and subdivided into branches, and compressed at the top, producing many flowers. The leaves, which stand upon long channelled footstalks, surrounding the middle of the stem, are divided, as in black hellebore, into several leaflets, usually seven or nine in number, long, narrow, serrated, lanceolated, and of a dark green colour. The scaly leaves or *bractæas*, placed at each ramification of the flower-stem, are smooth, trifid at the lower part and bifid towards the top; but those near the flowers are ovate, pointed, and of a much paler green than the proper leaves. The several stages of transformation of the foliage from proper leaves to bractææ, is particularly well seen in this plant, where the pedate leaves gradually abort their lobes, and the fimbriate bractææ, losing their divisions become trifid, bifid, and at last, near the flowers, entire. The flowers are numerous, terminal, drooping, of a pale green, and stand upon long footstalks, forming a sort of panicle: the sepals are five, ovate or heart-shaped, concave, permanent, and tinged at the apex with reddish purple: the petals are eight or ten, minute, tubular, placed in a circle within the sepals, and at the base nectariferous: the petals were mistaken for nectaries by Linnæus, and the true sepals, &c. described by him as petals, the plants being considered then devoid of calyx. The stamens are very numerous, the length of the sepals, supporting white anthers; the germens three or four, becoming beaked follicles like those of black hellebore, containing many small oval seeds disposed in two rows.

QUALITIES.—The smell of the recent plant is very fœtid, its taste bitter, and remarkably acrid, excoriating the mouth and fauces. "The bractææ possess these qualities in a greater degree than the proper leaves." The plant loses much of its acrimony by drying.

POISONOUS EFFECTS.—When administered in an undue quantity, this plant proves an extremely virulent poison. Its action, although more powerful, seems very much to resemble that of *helleborus niger*; occasioning sickness, pain in the stomach, violent catharsis, convulsions, and death. In Westmoreland, where this plant grows in great abundance, it has obtained, from its pernicious quality, the name of *felon-grass*. From the following fact, related by Mr. Martin, on the authority of Dr. Milne, it would appear that it is also a poison to sheep. Several years ago when the ground was covered with a deep snow, a flock of sheep in Ox-meadow, near Fulborn, in Cambridgeshire, finding nothing but this herb above the snow, ate plentifully of it. They soon appeared terribly disordered, and most of them died; a few being saved by having a quantity of oil administered to them in time, which made them vomit up the pernicious herb. Some of those which died, on being opened, were found to have their stomachs greatly inflamed. Notwithstanding its deleterious properties, the *helleborus fœtidus* is sometimes employed by the common people, and also by itinerant quacks, for the destruction of worms, and not unfrequently proves fatal. The following account, by a Mr. Cooke of Leigh, in Essex, is taken from the *Oxford Magazine* for 1769, vol. ii. p. 99.

"It is much used by venturesome quacks in decoction and coarse powder to kill worms in the belly, which it never fails to do. But it has a deleterious, poisonous quality, which some bodies cannot overcome, and then it is dangerous. Where it killeth not the patient, it would certainly kill the worms; but the worst of it is, it will sometimes kill both. Wherefore it is so dangerous a drug, it ought never to be internally

applied but upon very extraordinary cases, when other anthelmintic medicines have failed, if ever they do and even then too by a very skilful hand: and yet, alas! nothing is scarcely more commonly used by women especially in country places, than the decoction, or powder, of this violent vegetable, for the purpose aforesaid. It has been known to kill several youths, and an old woman also, in three hours' time. Others it renders heart-sick, even to swooning away; and if, through mere strength of nature, they overcome its violent operation and recover, some have lost the hair and the nails from their fingers and toes; and the scarf-skin of the whole body has also peeled off from head to foot thereby—a plain proof of strong poison.

"I had a most melancholy story from a mother in this city, viz. that a country fellow gave some of this plant to his two sons, one of six, the other of four years old, to kill worms; and that before four in the afternoon, they were both corpses."

We again turn to Mr. A. S. Taylor's book for the following case:—"Mr. J. H. Todd, Coroner for Southampton, has kindly forwarded to me the report of an inquiry which took place before him, in Nov. 1845, in which a child under two years of age was poisoned with an infusion of hellebore, administered to it by its grandmother, for the purpose of destroying worms. The leaves of the plant (Bear's foot) were bruised, and boiling water poured over them. Two dessert spoonfuls were given to the child, who had been suffering from ague, but from which he had recently recovered. Within ten minutes after taking the mixture he was very sick, &c. The matter vomited was of a green colour, and slimy: the sickness, &c. continued until the evening, when he died, *i. e.* about thirteen hours after having taken the mixture. There were convulsions before death. On inspection, the whole body appeared blanched; the eyes were sunk, and the pupils dilated. There was diffused inflammation of the mucous membrane of the stomach, and a well marked patch of inflammatory redness, about the size of a five-shilling piece, near its centre. The small intestines, which contained a brownish-yellow fluid, were much inflamed. The cæcum contained about thirty worms. The head and chest were not examined. Death was very properly attributed by the medical witness to the action of hellebore.

The woman who prepared the infusion stated that she had frequently given it in large quantities to young children, and there were no injurious effects. It is nevertheless to be regarded as an active poison; and if persons are not always killed by such worm-medicines, it must be regarded as a very fortunate circumstance. This acrid vegetable never can be given by an ignorant person without great risk.

MEDICAL PROPERTIES AND USES.—The whole plant is acrid, and violently cathartic; it sometimes operates as an emetic, and in large doses is highly deleterious. It is used chiefly as a vermifuge; the dried leaves, in powder, are given in ten grains to half a drachm; but its doses do not appear to have been precisely ascertained. The best form for children is a syrup. For this purpose, the bruised leaves are recommended to be first moistened with a little vinegar, then the juice is expressed from the leaves and made into a syrup with coarse sugar. A tea-spoonful is directed to be given at bed-time, and one or two in the morning, for two or three successive days, increasing or diminishing the dose according to the strength of the patient. In the western counties, according to Dr. Parr, a tincture is sometimes made of the leaves with cyder, and said to be a useful preparation. In whatever way, however, it is employed, says this able physician, no medicine acts with more certainty than bear's-foot as an anthelmintic. The root is often used in veterinary practice for the rowels for cattle; and if the powder of the leaves be applied to an ulcerated surface, a profuse discharge is excited. It is on account of these properties that it is vulgarly called *Oxe-heele*, *Setterwort*, *Setter-grass*, from *setting*, a term used by farriers, and supposed to be a corruption of setoning. Its virtues, as a vermifuge, were known to Gerarde, and it is frequently used as a domestic medicine in Yorkshire; but, in consequence of its violent properties, medical men seldom prescribe it; and it might, with great propriety, be expelled the Pharmacopœia, into which it was introduced at the recommendation of Dr. Bisset, who says—

"It is by far the most powerful vermifuge for long and round worms of any I have yet experienced. The decoction of about a drachm of the green leaves, or about fifteen grains of the dried leaves in powder, is the usual dose for children from four to seven years old. A full or sufficient dose generally proves more or less emetic. It is usually repeated on two and sometimes three successive mornings; the second dose has commonly a greater effect than the first, and never fails to expel round worms if there be any lodged in the alimentary canal."

Happily for mankind science is continually enlarging the sphere of our usefulness; and worms, which were formerly considered as the causes of disease, may generally (excepting the *taenia*) be treated as the consequences of disordered primæ viæ, and remedies worse than the malady discarded from practice. Dr. Bisset speaks of the plant as also useful in some asthmatic and hypochondriacal affections. Adamson says, that an injection of an ounce of the decoction of the roots is preferable to every other remedy in epileptic fits, arising from the presence of worms in the intestines.

This species, *H. fœtidus*, with another the *H. viridus* has often been employed medicinally instead of the true or ancient Greek Hellebore *H. officinalis* of Sibthorpe and Smith.



Erythraea yuccifolia L.

ÆTHUSA CYNAPIUM.—LESSER HEMLOCK, OR FOOL'S PARSLEY.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

GEN. CHAR. *Universal involucre* 0; *partial* 3-leaved, pendulous, dimidiate, placed on the outside. *Fruit* ovato-globose, carpels 5-ribbed; ridges elevated, thick, and acutely keeled.

SPEC. CHAR. "*Leaves* uniform; leaflets wedged-shaped, decurrent, with lanceolate segments."—*Smith.*

FOOL'S PARSLEY, so called from the deleterious property of the plant, and the resemblances it bears to parsley, for which it is sometimes unfortunately mistaken, is an annual plant, common in gardens and cultivated grounds in every part of Great Britain and Ireland; flowering from June to September. We observed it in profusion in the churchyards of St. George the Martyr, Borough; and St. Martin in the Fields, London.

From a root (*d*) which is slender and spindle-shaped, the stem rises to the height of a foot or more; it is erect, smooth, branched, striated or slightly grooved, hollow, and generally of a dark purple colour at the base, but not spotted. The lower leaves are tri-pinnate, smooth and shining; of a dark green colour, and supported on short sheathing foot-stalks; the upper ones are bi-pinnate: segments ovate-lanceolate, deeply cut, lobed, and more or less decurrent. The umbels are terminal, on longish peduncles, many rayed, the inner rays becoming gradually shorter; umbellules, small and spreading. The partial involucre consists of three long, linear, pendent leaves, which only half encompass the umbel on the outside. The flowers (*a*) are very small; the petals white, unequal, obcordate, and somewhat radiating; the stamens are five, simple, supporting roundish anthers, (*b*). The germen is beneath the flower, having two reflex styles and obtuse stigmata. The fruit (*c*) is ovate, roundish, deeply grooved, crowned with the styles, and divisible into two parts, each containing a single seed.

QUALITIES.—The seeds, when bruised, have a slight disagreeable odour, and a nauseous pungent taste. Alcohol extracts their active matter; which is an alkaloid that crystallizes in rhombic prisms; it is likewise soluble in water, but not in ether.

DISTINCTIVE CHARACTERS.—Being so abundant a weed in rich garden soils, the *Æ Cynapium* is frequently mistaken for common parsley; and therefore deserves to have its characters and noxious qualities universally known and exposed. Although it bears a strong resemblance to the garden parsley, it exhibits differences in its botanical characters, by which it may at once be distinguished. The leaves of fool's parsley are finer, more acute, decurrent, of a darker green; and instead of the peculiar parsley smell, have, when bruised, a disagreeable odour. When the flower stem of the fool's parsley appears, the plant is readily distinguished from *all* other umbellate plants, by what is called its *beard*—three long, pendulous leaves of the involucre (*e*) under the partial, and no involucre to the general umbels. The flowers too of the fool's parsley are *white*, those of the garden parsley *pale yellow*. In order to prevent mistakes, it has been recommended to cultivate the *curled* variety of the common parsley only; as it not only possesses the same virtues, but also makes a more elegant garnish.

From Dr. Buckhave we have gleaned the following interesting account; by which it will be seen, that it has also been inadvertently used for *Conium maculatum*. From this plant, however, it is essentially distinguished, as well by the inferiority of its size and unspotted stalk, as by the partial *involucre*s, already described; this plant having no general involucre, while hemlock has both general and partial.

"A patient, aged 40, being afflicted with carcinomatous ulcerations of the face and neck, Hemlock pills were prescribed; which she took without inconvenience for two months. But no change, for the better, being produced upon the disease, her Physician prescribed the herb of the Hemlock; directing an ounce to be boiled in thirty-two ounces of water; and of the strained liquor, three ounces were ordered to be taken daily, in different portions, for four or five weeks. But during that time, she frequently complained that the draughts excited tremors, vertigo, headache, cholic pains, vomiting, loss of strength and aversion to food. Suspecting that these might proceed from regimen, he directed strict attention to that particular; and advised her to continue the decoction. But being afterwards informed that symptoms still more alarming had taken place, particularly violent vomiting, he was led to examine the plant, and soon found a large proportion of the *Æthusa*. After this, she was furnished with genuine Hemlock; she formed a similar decoction of it, and took it in the same manner, without inconvenience. Under this medicine, the symptoms of the disease gradually decreased, and at the end of eleven months, the ulcerations healed." This author relates, also, two or three other cases of the same kind.

POISONOUS EFFECTS.—The subjoined cases more fully illustrate the symptoms this violent poison produces—

“Two ladies of Castle Donnington, Leicestershire, partook of some salad wherein *Æthusa Cynapium* had been put by mistake, with common parsley, for which it had been *grown* and *was gathered*. Symptoms of an alarming kind soon followed, indicative of the full operation of that pernicious vegetable. They were, a troublesome nausea, with occasional sickness; accompanied with oppressive headache and giddiness; also a strong propensity to slumber, at the same time that *calm* repose was wholly prevented by frequent startings and excessive agitations. The mouth, throat, and stomach, were impressed with the sensation of pungent heat, attended with great difficulty in swallowing. Increased thirst prevailed, with total loss of appetite for every kind of solid aliment. The extremities felt benumbed and were affected with tremors; and all the vital and animal functions were performed with unusual inactivity.” The ladies recovered, but no allusion is made to the treatment that was pursued.

The following relation was communicated to Mr. Curtis, by Mr. Lowe, Surgeon, at Preston—

“On Thursday, the 5th of June, Mr. Frekleton, a healthy, strong man, about 35 years of age, a publican, ate a handful of fool’s parsley with nearly the same quantity of young lettuce, about one o’clock at noon; in about ten minutes he was affected with a pain and hardness in his stomach and bowels, attended with a rumbling. He walked out into the fields, but was seized with such languor, weariness, and weakness, that it was with difficulty he supported himself till he got home; he was much troubled with giddiness in his head, his vision was confused, and sometimes objects appeared double; at seven o’clock he took an emetic, which brought up, he supposes, all the fool’s parsley he had eaten, but not any of the lettuce; this considerably relieved him from the uneasy sensations in the bowels, but the other symptoms continued, and he passed a restless night. Next day he had much pain in his head and eyes, which last were inflamed and bloodshot: he had different circumscribed swellings in his face, which were painful and inflamed, but they were transient and flew from place to place; this night he took a powder, which made him perspire profusely. On Saturday his eyes were highly inflamed, painful, and entirely closed by the surrounding inflammation; this day he was bled, which gave him much ease in his head and eyes. From this time until Monday he continued to get better, but had, even then, pain, heat and inflammation in his eyes, with cedematous swellings of his cheeks; his remaining symptoms went off gradually, and he is now well. He had been told that the plant he had eaten was hemlock: to be satisfied, I accompanied him into the garden where he had gathered the plant, and found it to be *Æthusa Cynapium*, or fool’s parsley.”

M. Vicat relates that a boy six years of age, having eaten this plant at four in the afternoon, which he mistook for parsley, began immediately to utter cries of anguish, and complained of cramps in the stomach: while he was going from the country to his father’s house, the whole of his body became excessively swelled, and assumed a livid appearance: his breathing became every moment more difficult, and short; and he died towards midnight. Another child, aged four, was also poisoned by the same plant, and although the contents of his stomach were rejected, he went out of his senses, talked extravagantly, but eventually recovered, by suitable medical assistance.

* That the root of this plant contains a most energetic poison and that it is capable of producing rapidly fatal effects, is proved by a case reported by Mr. Thomas, in which death took place in an hour. In May 1845, a child aged five years, in good health, ate the bulbs of the *Æthusa* by mistake for young turnips. She was suddenly seized with pain in the abdomen, followed by sickness, but no vomiting. She complained of feeling very ill. On trying to eat, she could not swallow. She was incapable of answering questions, and her countenance bore a wild expression. The lower jaw became fixed, so as to prevent anything being introduced into the mouth. She then became insensible, and died in *an hour* from the commencement of the symptoms: so far as could be ascertained, there were no convulsions. No post-mortem examination was made. A second child, aged three years, shortly after eating the same substance, was attacked with pain in the epigastrium, sickness, vomiting, and profuse perspiration. She soon recovered, with the exception of suffering severe griping pains without purging, but these disappeared the following day. A third child, of the same age, suffered from similar symptoms. Recovery in the two last cases was due to the plant having been eaten on a full stomach, and to the effect of early and copious vomiting. (Medical Times, Aug. 23, 1845. 408.) Mr. Thomas injected about two ounces of the juice expressed from the recent bulbs into the stomach of a dog through an aperture in the œsophagus, which he afterwards secured by a ligature. There were violent spasms and urgent attempts to vomit. In most of the animals upon which this experiment was tried, death took place in from one to four hours.

The poisonous properties of this plant are believed to be due to an alkaloid, the chemical characters of which are unknown.

MORBID APPEARANCES.—Riviere informs us, p. 255, that in a person who died after having taken this plant, “the tongue was black; a brownish serosity was found in the stomach; the liver was hard, and of a yellow colour; the spleen livid; but the body was not at all emphysematous.”

TREATMENT.—Emetics and purgatives should be administered, and as soon as the poison is evacuated, vinegar and the citric or other vegetable acids. Should stupor remain, apply cold affusions to the head, or bleed from the jugular vein: apply friction to the body, and sinapisms to the feet: and during the cure, give small doses of sulphate of magnesia, dissolved in almond emulsion.



Dendrobium moniliformes.

DENDROBIUM MONILIFORME.—NECKLACE-STEMMED DENDROBIUM.

CLASS XX. GYNANDRIA.—ORDER I. MONANDRIA.

NATURAL ORDER, ORCHIDÆ.—THE ORCHIS TRIBE.

A NATIVE of China and Japan, from the former of which countries it was introduced several years since by the Horticultural Society.

In general it is unhealthy, grows slowly, and never flowers. It is particularly distinguished by the tumid joints of the erect stem, of which the contractions become when old so considerable, that the stem acquires something the appearance of a necklace.

Thunberg describes, in his *Flora Japonica* (p. 30), an *Epidendrum monile*, to which he refers the *Fu Ran* of Kæmpfer; but he adds, that the leaves are acute, and the flowers white, which renders it probable that he intended some other species. Kæmpfer tells us, that it is suspended by the Japanese in baskets before the doors of their houses, in consequence of some vulgar superstition, the nature of which, however, he did not ascertain.

Stem erect, 2 feet high, polished, branched, with pale-green, tumid joints. *Leaves* oblong, somewhat distichous, obliquely 2-lobed at the apex, with short, membranous, stem-clasping bases (petioles). *Flowers* in pairs, seated on a common peduncle, proceeding from the stem towards its apex, pale rose-coloured, marked with red veins. *Bractææ* oblong, obtuse, membranous, slightly hairy. *Labellum* with two yellow spots in the throat.*

That plants should be the materials, on which all animal life subsists, and by which it is sustained in its bodily organizations, is a well-known purpose of their own formation. By the operation of their living principle, they convert the inorganic matter, which they not only find but select out of what their roots meet, into their own kind of substance; and this, which gives them their visible existence and beauty, becomes again transmutable into animal flesh by the animal's own vital nature and functions. This double process is every day universally all going on in the three kingdoms of nature. The word selection may seem strong; but if the radicals and the fibres of the roots entering a soil, shoot toward that which their plant needs; and tho coming in contact with other particles, yet take up those only which suit them—what can we call that but selecting? There is a refusal of the one, and an active absorption of the other. A property of discerning and taking, in preference to other matter, that which is the fittest for their nourishment, seems therefore to belong to all Plants.

Without Vegetation, none of the animals we know, but those that live on water, or air, could have continued in existence; for neither man nor animal can subsist on any thing in the mineral kingdom, until vegetation, by first making it vegetable substance, has prepared it for a future conversion into their own. Hence the justness of the Mosaic account, in placing the creation of Plants before that of Animals. Vegetation could have remained without animals—but these unless their food had been ready for them, would, under their present economy of being, have soon disappeared.

It is interesting to read of the mutual services which the organized kingdoms, from their reciprocal composition and structure, can render to each other. Thus an intelligent Naturalist has observed of the OAK:—

‘The insects which live and have their being on the Oak, amount to hundreds of species. It nourishes ferns, lichens, mosses, agaries, and boleti. It furnishes its apples, gall-nuts, acorns, leaves, and sawdust. Some are attacked by small fungi, which break their surface, admit moisture, and facilitate decay. The leaves, decomposing, form a vegetable earth; and the worm seizes on them as his portion, and having fed upon part, draws the remainder into the earth.’

* Botanical Register.

Of the Ivy.—‘This saves many animals from want and death in Autumn and Spring. In October it blooms in profusion; and its flowers become an universal banquet to the insect race. The great black fly, *Musca grossa*, and its numerous tribe, with multitudes of small winged creatures, resort to them: also, those beautiful animals, the latest birth of the year, the Admiral and Peacock Butterflies. In its honey, it yields a constant supply of food till the frosts of November. In Spring, in the bitter months of March and April, when the wild products of the field are nearly consumed, the Ivy ripens its berries; and almost entirely constitutes the food of the Missel-Thrush, the Wood-Pigeon, and other birds.’ Knapp’s Journ. of a Naturalist, p. 66, 86.

While most of our Plants thus form the sustenance and banquet of the animated kingdom, other classes of them were made and meant to be its natural Medicines and secret physicians. For this purpose, those which thus benefit, are universally dispersed. We may regard many of these as useless weeds, yet they silently spread amid all vegetation, to be every where ready for the general benefit. Brutes often need them as much as ourselves, and are repeatedly seen at particular times to select and crop the herbs that they do not use for food, but to which some recollected experience, or unexplainable perception or instinct, leads them, for their resulting efficiencies. Some of these useful plants are also so interspersed with their daily sustenance, that they cannot take the one without also digesting the other. But to man, Plants have been in all ages the natural and the earliest and the most universal physicians. The metallic and mineral drugs of our modern pharmacopœias have not been above three centuries in their sanitary use. Vegetable medicines constituted the physic of our ancestors, as they still are of all nations who do not make European science their predominating guide.

When we consider that Vegetation carpets all the surface of our Globe; and that its shrubs and forests still occupy the largest portion of its superficial extent; and when we find that it is universally, by day and by night, streaming from its verdure—from every leaf, fruit, and flower—an ærial fluid of some sort or other, and in the lower region of the atmosphere immediately over our heads, and mixing in the gaseous strata of it which we breathe.

It is agreed that in the day time plants imbibe from the atmosphere carbonic acid gas; decompose it; absorb the carbon, and emit the oxygen. In the dark, they give out carbon and absorb oxygen, but in far less proportion. Smith Int. Bot. 212-13. . . They appear also to decompose the moisture they receive, and to effuse the oxygen.

Some plants differ in what they exhale. M. Candolle found that some Mushrooms exposed to the Sun, under water, yielded 70 per cent. of hydrogen gas; others, in the Sun, in six hours, gave out 42 hydrogen and 56 nitrogen; others, in ten hours, 55 hydrogen and 44 nitrogen. In darkness, this emission ceased. It seems to be a general rule, that the green parts of vegetables are always giving out oxygen gas in light.

Gruithuisen thinks that plants have themselves produced their carbonic acid. Bull. Univ. 1830, p. 163. The leaves and bark of the Pimento exhale aromatic particles or gas so inflammable, that the growers allow no fire to be made near them.

We shall then perceive that it must be hourly causing the most important effects, additions, and changes in the air which we inhale, and must be a very essential and active agent on the vitality, functions, and powers, of our material frame. The atmosphere could not be what it is, in that portion of its expanse which rests immediately on our inhabited surface, unless Vegetation was around us. The powerful effects of its presence we feel in various parts, in the diseases which it occasions.

These are well known in the Tropical countries amid their luxuriant vegetations; and in all marshy districts; and especially in the malaria produced by moisture occurring to decayed vegetation, which is more fatal, when sea and fresh water combine to overflow it.

From these we may form some notion of its extensive influence, in a minor degree, both for good and for ill, in every other locality. That it has constantly an exciting and exhilarating and salubrious effect, we all experience when we pass from a plant-less city into a plant-abounding country. Strength and spirits arise within us, as we reach the abode and diffusion of the Vegetable Kingdom. The eye and mind are not only animated and delighted by its beauty and quietude and gracefulness, diversified figures and colours; and by their harmless playfulness as the breeze flutters among them—but the body feels a new vigour, and its functions new energies, by some invisible agency, of which we soon become strongly sensible; and whose gradual operation, our reviving health, where it has been lapsing, so often gratefully acknowledges.*

* Turner’s Sacred History.



Conium maculatum.

CONIUM MACULATUM.—COMMON, GREATER, OR SPOTTED HEMLOCK.

CLASS V. PENTANDRIA—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Fig (a) represents the root with part of the stem; (b) a perfect flower magnified; (c) the pistil; (d) the fruit, also magnified.

COMMON SPOTTED HEMLOCK, or, as it is termed in our Dispensatories, *Conium*, is a tall umbelliferous biennial plant indigenous to Britain; growing wild in almost every climate, and with us, is found by roadsides, in hedges and waste places; flowering in June and July.

The root is fusiform, resembling that of the common garden parsnip; of a yellowish-white colour externally, and white and fleshy within. The stem, which rises from two to five feet high, is herbaceous, erect round, hollow, much branched, polished and variegated with spots and streaks of a reddish purple. The leaves much resemble parsley or chervil, a circumstance which has sometimes given rise to fatal accidents. The lower ones are large, spreading, and repeatedly compound; the upper ones are bipinnate; the whole stand on long furrowed footstalks; the leaflets are ovate, sharply serrate, of a shining green colour on the upper side, and a whitish green underneath. The umbels are terminal, compound, and many rayed. The general involucre consists of several short, unequal, lanceolate leaves; the partial ones generally of three leaflets, which only half encompass the umbellule. The flowers are small, and very numerous; the petals white, the outer ones somewhat irregular, inflexed at the apex, and heart-shaped. The stamens are capillary, with roundish anthers. The germen is situated under the flower, supporting two reflexed styles, and obtuse stigmata. The fruit is an ovate, or roundish diakenium or rather diakenopsis, each carpel bearing five equal prominent primary ridges, the lateral ones marginal: the ridges are waved or crenated; and the vallecules are traversed by many streaks, but destitute of vittæ; the seeds are solitary, each having a deep narrow groove in front.

Hemlock is not unfrequently mistaken by herb-gatherers, and even by medical men, ignorant of Botany, for other plants of the same tribe—most commonly for wild cicily, (*Chærophylum sylvestre*), which it very much resembles. By a little attention to the characters, the plants may readily be distinguished. Thus in *C. sylvestre* the stem is furrowed, without spots, and hairy; in hemlock it is smooth, and irregularly studded with purplish spots. The latter too has a broadish reflexed *involucre*, consisting of from three to seven leaves, under both the universal and partial umbels; petals bifid; and seeds, that are striated and beautifully notched on the edges; whilst in the former the partial involucre only is present, the petals are entire and the seeds are not striated.

Other umbelliferous plants are likewise frequently mistaken for hemlock even by those persons who are employed to collect herbs for medicinal purposes. A large quantity of *œnanthe crocata* was some time since at least offered for sale, if not bought as *Conium*; and in the summer of 1831, we met with a herb-gatherer who had collected a bundle of *Myrrhis temulenta*, mistaking it for *Conium*; and who, notwithstanding our assurances, insisted it was the true hemlock, and contemned our warnings.

To errors such as these, and which only can be avoided by medical men being themselves conversant with the characters of the officinal plants, must much of the disappointment and many of the failures be attributed, that are so frequently heard of, as well as those fatal accidents which from time to time occur.

A plant, bearing the name of *Conium* was celebrated amongst the Ancients, as a violent poison; and those who were condemned to death by the tribunal of Areopagus, were poisoned by the juice of a species of hemlock. Theramenes, one of the thirty, and Phocion suffered publicly from its effects: and Socrates, whose disciple he had been, and who was the only senator who ventured to appear in his defence, not only immortalized himself by his talents, wisdom and virtues, but by his own death has conferred a notoriety on *CONIUM*, which time will never efface. The account of his death as narrated in the *Phædon* of Plato, we subjoin.

And while it affects the mind by its tender touches, and by a consideration of the blind and delusive impulses, which can stimulate a popular faction to a fatal deed, the consequences of which were unseen, till the glory of the Athenians was disappearing, it is evident that the symptoms which the poison is here said to have produced, do not exactly correspond with those we look for, from the *Conium maculatum* of Europe: but we must remember that the historian is not a physician, from whom to expect a scientific or modern description; “that the idiosyncrasies of different individuals render them variously susceptible of the action of the hemlock;” and that all narcotic plants exert very different effects when administered to the natives of warm climates, to those which they produce when they are given either to the weak or the robust of our northern soil.

“And Crito hearing this, gave the sign to the boy who stood near. And the boy departing, after some time returned bringing with him the man who was to administer the poison, who brought it ready bruised in a cup. And Socrates beholding the man, said, ‘Good friend, come hither; you are experienced in these affairs,—what is to be done?’ ‘Nothing’ replied the man, ‘only when you have drank the poison, you are to walk about until a heaviness takes place in your legs; then lie down: this is all you have to do.’ At the same time he presented him the cup. Socrates received it from him with great calmness, without fear or change of countenance,

and regarding the man with his usual stern aspect, he asked, 'What say you of this potion? Is it lawful to sprinkle any portion of it on the earth as a libation or not?' 'We only bruise,' said the man, 'as much as is barely sufficient for the purpose.' I understand you, said Socrates, but it is certainly lawful and proper to pray the gods that my departure from hence may be prosperous and happy, which I indeed beseech them to grant. So saying, he carried the cup to his mouth, and drank it with great promptness and facility.

Thus far most of us had been able to refrain from weeping. But when we saw that he was drinking, and actually had drank the poison, we could no longer restrain our tears. And from me they broke forth with such violence, that I covered my face and deplored my wretchedness. I did not weep for his fate so much as for the loss of a friend and benefactor, which I was about to sustain. But Crito unable to restrain his tears was compelled to rise. And Apollodorus, who had been incessantly weeping now broke forth in loud lamentations, which infected all who were present except Socrates. But he observing us, exclaimed, 'What is it you do my excellent friends? I have sent away the women that they might not betray such weakness. I have heard that it is our duty to die cheerfully, and with expressions of joy and praise. Be silent therefore, and let your fortitude be seen.' At this address we blushed and suppressed our tears. But Socrates, after walking about, now told us his legs were beginning to grow heavy, and immediately laid down, for so he had been ordered. At the same time the man who had given him the poison, examined his feet and legs, touching them at intervals. At length he pressed violently upon his foot, and asked if he felt it. To which Socrates replied that he did not. The man then pressed his legs and so on, showing us that he was becoming cold and stiff. And Socrates feeling it himself, assured us that when the effects had ascended to his heart, he should then be gone. And now the middle of his body growing cold, he threw aside his clothes, and spoke for the last time. 'Crito, we owe the sacrifice of a cock to Æsculapius. Discharge this and neglect it not.' 'It shall be done,' said Crito; have you any think else to say?' He made no reply, but a moment after moved, and his eyes became fixed. And Crito seeing this closed his eyelids and mouth."

The description of the plant as given by Dioscorides only proves it to have been one of the *umbelliferæ*, his character of which may be applied to many species: and the references to it by latin writers, amongst whom are Persius, Virgil, Lucretius, and Pliny, under the name of *Cicuta*, reflect no light on the subject.

The leaves of the hemlock when fresh and bruised, have a strong taste, and an odour; when dried they are not so disagreeable, but still possess a heavy narcotic smell. Their taste is slightly bitter and nauseous. Dr. Bigelow found, that if the green leaves are distilled, the water which collects in the receiver has an insupportable nauseous taste, while that remaining in the retort is comparatively insipid.

POISONOUS EFFECTS.—An over-dose of hemlock produces all the symptoms of narcotic poisons, such as sickness, vertigo, delirium, dilatation of the pupils, great anxiety, stupor and convulsions. "It first produces giddiness and headache, which are followed by drowsiness so intense that the patients fall asleep whilst they are conversing; coma and convulsions follow, and if proper means to obviate the fatal effects are not promptly taken, death rapidly ensues." We are indebted to M. Orfila for the following account.

On the 23rd of April, at one o'clock, a small dog was made to swallow an ounce and a half of the *fresh* root of *Conium maculatum*, the æsophagus was tried. Forty-eight hours after, he had experienced no bad effects. On the 25th, at noon he was only somewhat dejected.

The same celebrated Toxicologist furthermore observes, that an ounce of the extract of the leaves killed a dog in forty-five minutes when swallowed; ninety grains killed another through a wound, in an hour and a half, and twenty eight grains another, when introduced into a vein, in two minutes. It therefore as Christison remarks, acts by entering the blood vessels; the extract however is a very uncertain preparation, owing to the imperfect pharmaceutical process usually depended on. M. Agasson speaks of a man who had taken hemlock, and who had all the upper parts of the body affected by convulsions, whilst the lower extremities were paralysed. A furious delirium has sometimes been observed in other persons: thus, according to Vicat, p. 274, an Italian who cultivated vines in his own country, found amongst them a plant of this kind, which he took for a parsnip; he ate part of the root for his supper, and gave the rest to his wife, after which they went to bed. In the middle of the night they awoke completely delirious, and began running here and there without a light, over the whole house, in a fit of madness and fury; they struck themselves so rudely against the wall, that they were bruised all over, and their faces particularly, and eyebrows, appeared swelled and bloody: suitable medicines were administered to them, and they were restored to health.

MEDICAL PROPERTIES AND USES.—The use of hemlock was principally confined to external applications, till it was introduced by Störck, as an external remedy for scirrhus, cancer, and a host too numerous to mention of other chronic affections. Fothergill, in our own country, and Chaussier and Dumeril in France, have found it successful in tic douloureux. Dr. Jackson, who has published several cases in the New England Journal, vol. ii. in which perfect relief was afforded to this disease, recommends "to begin with a single grain of the extract, and to increase to five grains for the second or third dose: afterwards to add five grains to every dose till a full effect is felt on the system."

To avoid disappointment from its effects, which so frequently occurs, the plant must be gathered in June, just as it commences flowering. The leaflets should then be plucked from the footstalks, which are to be thrown away; and the former, after being carefully dried in the sun, or in a stove, very moderately heated, may be preserved in sealed paper, and firmly pressed into a box, from which both air and light are to be excluded if possible. The powder, the best manner of administering it, may be kept for years in an opaque closely-stopped phial. The extract can scarcely ever be relied on, from the carelessness observed in its manufacture: we therefore recommend our readers to practise Mr. Houlton's plan, which consists in submitting the expressed juice to the atmosphere, in shallow vessels; whereby spontaneous evaporation is produced; and a preparation obtained, containing all the virtues of the recent plant.

DOSE.—In powder, gr. ij. gradually increased to ʒj.; or from gtt. xij. to lx. of the expressed juice.

OFF. PREP.—Extractum Conii, *L. E. D.* Tinctura Conii, *E. D.*



Erythrina carnea.

ERYTHRINA CARNEA.—FLESH-COLOURED CORAL TREE.

CLASS XVII. DIADELPHIA.—ORDER III. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

THE plant which is represented is not the genuine *Erythrina carnea*, but a downy-leaved variety, with smaller flowers, and a less prickly stem. For the opportunity of figuring the species, as originally described by Miller, and drawn by Ehret, we are indebted to the Count de Vandes, in whose hothouse at Bayswater our specimen was produced.

A native of the hottest parts of South America, particularly of Vera Cruz and Santa Martha, whence seeds were originally sent to Miller by Houston. It is rather a handsome plant while in flower, but not particularly worth cultivating at any other time.

Stem furnished with short, hooked prickles. *Leaves* ternate, roundish ovate, very slightly cordate at the base, acute, smooth on each side, with a slightly prickly petiole. *Racemes* appearing along with the leaves, from 4 to 6 inches long, erect, very slightly pubescent. *Calyxes* tubular, truncate, with 5 small cre-natures. *Corolla* pale flesh-colour, about an inch and a half long; *vexillum* linear; *alæ* and *carina* of equal length, both included within the calyx, acute. *Ovarium* pubescent.*

Plants are distinguished, for their multiplicity and variety; for that exuberance of imagination and taste which they display, and for that sense of elegance and beauty which their Maker must have had, to have so formed and diversified them. They are entirely the creation of His choice—the inventions of His rich and beautiful fancy. Their attractive shapes and qualities, and the abundant gratifications and important uses which we and our fellow animals derive from them, explicitly show that kindness as well as goodness actuated His mind when He projected and made them. They have been all individually designed: and special thought must have been employed in each; both in fixing their specific differences of form and products, and in perceiving what particular combinations and variations of arrangements would effect in every one its appointed end and use.

The Vegetable kingdom expands every where before us an immense portraiture of the Divine Mind, in its contriving skill, profuse imagination, conceiving genius, and exquisite taste; as well as in its interesting qualities of the most gracious benignity and the most benevolent munificence. The various flowers we behold, awaken these sentiments within us, and compel our reason to make these perceptions and this inference. They are the annual heralds and ever-returning pledges to us of His continuing beneficence, of His desire to please and to benefit us, and therefore of His parental and intellectual amiabilities. They come to us, together with the attendant seasons that nurse and evolve them, as the appointed assurances that the World we inhabit is yet to be preserved, and the present course of things to go on.

The recorded promise is, that 'While the earth remaineth, seed-time and harvest, and cold and heat and summer and winter, and day and night, *shall not cease*.' Gen. ch. viii., ver. 22... This declaration has been since steadily fulfilled for nearly forty two centuries.

The Thunder, the Pestilence, and the Tempest, awe and humble us into dismaying recollections of His tremendous omnipotence and possible visitations, and of our total inability to resist or avert them; but the beauty and benefactions of His Vegetable Creations—the Flowers and the Fruits more especially—remind and assure us of His unforgetting care, of His condescending sympathy, of His paternal attentions, and of the same affectionate benignity still actuating His mind, which must have influenced it to design and execute such lovely and beneficent productions, that display the minutest thought, most elaborate compositions, and much personal kindness.

The command for the rise of the Vegetable Kingdom presents them to us in the three natural divisions of—the GRASSES, the HERBS, and the TREES; and it extended to ordain their appearing with their reproductive powers for the formation of their seeds and fruits, in order to provide for their perpetuation on Earth in an unfailing succession, without any new creation. The Deity chose that His own agency, and the secondary forces it would employ, should take the form of that organical productivity which is still as great a mystery as it has ever been—which no natural properties or powers perceptible in external nature can at all explain—and which can therefore be justly referred only to His superintending and actuating Power, that prefers

* Botanical Register.

to act in this unseen efficacy, rather than in the perpetual display of manifest new creations. The invisible miracle is left to be inferred by the human sagacity, from the wonderful phenomena that are continually occurring to our eyesight, which no human or known natural agency can account for. It is thus that He makes His eternal Power and Godhead the deduction of our reason and the sentiment of our intellectual sensibility, as well as a communicated truth from His personal revelation. The appeal has been felt by all nations in all ages, although few have acted properly or consistently with the sublime impression.

All Vegetables, in every region, and of all sorts, from the most minute to the most towering; and they are of every degree and variety of size, from that pettiness which escapes our natural sight, to that magnitude which we feel to be gigantic and would deem sublime, but that greater things are about us; have these properties in common with all animals and with the human race—organization: an interior power of progressive growth; a principle of life, with many phenomena that resemble irritability, excitability and susceptibility; and a self-reproductive and multiplying faculty. In all these qualities, they are distinguished from inorganic and earthly matter, and from all fluids and gases; and by these are raised high in the scale of being above them. In these they resemble all animated nature, and our prouder selves. We may dislike such a relationship; but to this extent our bodily frame and functions establish a natural kinship between us. They are very humble cousins, but we cannot destroy the organical and living affinity, nor escape the closing assimilation. We decline and die, as they do; and they sicken, fade, die and decay, like every human being. There is also another analogy. Their substance nourishes us, and ours not unfrequently becomes a part of theirs. They can feed on us, as we more continually and universally do on them. All living nature is linked together by actual connexion, if not by perceivable sympathies.

An organized being is a peculiar conception and fabrication of the Divine mind. And Vegetables have been caused to be organized beings of definite figures, diversified from each other into distinct classes and species; but each species constantly retaining and perpetuating its own peculiar configurations and the qualities thence resulting—and all with a living principle within them. Life and organization are inseparable companions.

To form a correct idea of what an organized being is, you may observe, that in human mechanism we have an imitation and an analogy of vegetable and animal organization, which enable us more fully to understand it, and to perceive how it has originated. Neither watches, cotton-mills, nor steam-engines grow: they must be made by human hands, under the direction of a designing thought and will; and this mode of their fabrication discovers to us how all similar things whose forming agents we have not seen at work and therefore how all natural organizations whose principles of construction are the same, and of which they are in perfect similitude, must have been made.

All mechanisms, from the pair of tongs or the snuffers, to the windmill, the ship, and the manufacturing machines, consist of pieces or particles of matter taken out of their natural and proceeding state, and put into a peculiar arrangement in due relation to each other, so that, from this specific combination, the action of the completed thing may produce the effect intended by its planning, adjusting and commanding maker. Such are the mechanisms of man, and such are the organizations or mechanisms of his Creator. The plant and the animal, and the human beings are, in their bodily structure, material machines. They are so many mechanized substances, consisting of parts that have been put together from some other state into designed and adapted arrangements; and by their artificial and special construction, they each possess and exert powers which thence arise, and produce the phenomena which it was intended to effect. Nothing but human workmanship and skill will account for human mechanism. No metal in the mines could by any chance move itself into the wheels and springs and parts and adjustments which constitute a watch or an organ; and begin marking time or playing a melody. So nothing but Divine agency and intelligence will explain the manner in which the inert particles of things became combined originally into vegetable or animal organizations; because all other known agencies are known to be utterly incompetent to such effects. In neither human or Divine mechanisms do the parts of which they consist tend in themselves to be what they are, or do what they do. Iron has no tendency to be a hammer or a chain; nor brass to be in a clock or cannon, or in a telescope, or in a piano-forte. So none of the particles that constitute plants have any natural tendency to be a carnation, an apple or an acorn, nor to form animal flesh, or to be wings, feathers, feet or fins.

In all cases of mechanism and organization, the forming parts and particles have been taken out of their natural and preceding state, and have been put into those mechanized positions and combinations by some thinking, willing and competent agent, for the express purpose of their being thereby made to be the artificial figures and individual things which we see them respectively to be, and of doing the precise and determinate actions and effects which each of them separately and peculiarly performs. Such are organizations in general: and Plants are that peculiar species of their construction, which display to us the Divine ideas in this class of natural being; and which form the largest compartment in the immense panorama of the surface of our terrestrial fabric.*

* Turner's Sacred History.



Phellandrium aquaticum.

ÆNANTHE PHELLANDRIUM.—FINE-LEAVED WATER HEMLOCK.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Fig (a) represents the corolla, stamens, &c.; (b) a back view of the corolla, showing the calyx; (c) the germen and styles, with the stamens and anthers; (d) the fruit.

THIS is an indigenous biennial plant, found growing in ditches and rivers; but not very common. We found it (says Professor Burnett,) in great abundance in a pond at Kentish Town, and in a deep ditch at Battersea, associated with the elegant *Butomus umbellatus*, *Lythrum Salicaria*, and other aquatics. It flowers in July and August.

From a jointed root-stake, the fibres from which grow in whorls, proceeds an erect, hollow, smooth, furrowed stem, of a yellowish green colour, and very thick at the lower part, with diverging branches, to the height of three or four feet. The leaves are large, spreading, smooth, dark, shining green, tripinnate and finely divided. The umbels are many rayed, axillary, and opposite to the leaves. The flowers are small, white, formed into umbels, which in the species now under consideration, have a partial involucre, composed of many lanceolate small leaves; petals equal, obcordate; calyx 5-leaved. The filaments are five, longer than the corolla, and supporting roundish anthers. The germen is inferior, oblong, with two styles, and obtuse stigmata. The fruit is ovate, smooth, striated, and splits into two akenia, each containing one small seed. The old genus *Phellandrium* is now allied to *Ænanthe*; from which it differs only in the absence of a general involucre, and in having all the florets fertile, and not radiate.

QUALITIES.—The whole plant has a heavy, disagreeable smell; the seeds (which are the parts that have been used in medicine) have an aromatic odour, and a moderately pungent taste, resembling those of fennel. Distilled with water, they yield an essential oil, of a pale yellow colour, and a strong penetrating smell. One pound affords an ounce of watery, and nearly double this quantity of spirituous extract, of which more than three drachms consist of resin.

MEDICAL PROPERTIES AND USES.—The seeds of *phellandrium aquaticum*, or, as it is now called, *Ænanthe Phellandrium*, are carminative narcotic, and diuretic. They have been much recommended on the continent in pulmonary consumption; and many cases are recorded, in which the disease, if not cured, was evidently relieved by them.

Dr. Selig narrates a case of a young unmarried woman, whose mother died consumptive. She laboured under cough, dyspnœa, purulent expectoration, pain in the chest, and fever in the afternoon.

It ought to be remarked, that during four weeks, in which Dr. Selig exhibited various pectoral and febrifuge medicines, the cough, fever, and pains in the chest were much abated; but the expectoration continued, and was offensive by its smell. He then ordered the water-hemlock, with nitre and gum arabic; and strongly urged his patient to permit a seton to be inserted between the shoulders; which she would not submit to. In fourteen days she recovered astonishingly. There were, now, scarcely any remains of fever, and the cough and purulent expectoration were greatly diminished. Her strength and spirits returned. But as the doctor still insisted on the propriety of introducing a seton, and as her terrors at the remedy were great, she abandoned him and his medicine. She then began to grow worse, and in a few months after again sent for him: but the disease was too far advanced to leave any room for hope, and she died some months afterwards.

The second case is more interesting. It is that of a youth of thirteen years of age, who had all the

symptoms of phthisis pulmonalis; and who was completely cured by means of the *Semina Phellandrii aquatici*, which he took for two months, without interruption.

There is a note added to this case by Dr. Hufeland, the editor of the journal from which this account has been translated, where he says, that he also derived great benefit from the same remedy.

Dr. Hargens, of Kiel, likewise states that it relieves consumptive symptoms; and as it is a native of our own country, we wish to direct the attention of British practitioners to it, as a remedy worthy of trial, and one that can be readily obtained. Should any one be disposed to make use of it, it ought to be borne in mind that those of the *umbelliferous* plants which are possessed of active narcotic properties, possess them in an increasing ratio, with their moist or shady situations.

The seeds also were employed by the ancients in calculous complaints; and have been highly extolled by Heister, Ernsling, and others among the moderns, as possessing valuable diuretic, antiseptic, and expectorant powers. When taken in large doses, they appear to produce, though not very actively, the ordinary effects of the narcotic poisons; and on this account we have thought proper to figure the plant in our work. Wepfer has related several cases of poisoning by it; but it appears probable that the *Cicuta virosa* was mistaken for it. Linnæus asserts that the horses in Sweden are seized with palsy by feeding on the Water-Hemlock: to the cow, however, it is wholesome, and she, being guided by her faculties of smelling and tasting, feeds upon it unhurt; but that its noxious qualities are attributable to the larva of a small coleopterous insect, *Curculio paraplecticus*, L. (*Lixus paraplecticus*, of Fabricius and Latreille,) which is found in its stalks. The effects respecting this insect are now admitted to be fabulous.

It is, indeed, wisely arranged by God that the plants designed for pasture are not equally inviting to all his creatures: were not this the case one animal would deprive another of food, and the necessity of affording a sufficient supply of the same kind of plant to so great a number of animals would prevent that display of variety in the vegetable kingdom which now affords so much opportunity for research and admiration. The various objects of nature are not placed before us that we may extend our hand to gather them, and, without any thought or pains, to receive from them all their advantages: but to man are given intellectual powers to study, and bodily strength to labour for the extension of their value. All that is necessary to be known respecting our destiny for a future world is revealed with great plainness by the Scriptures; but for our comfort in this world we are required to exert the capacities with which we are endowed in order to make the requisite discoveries. We may remark, in favour of cultivation, that even the soils most friendly to vegetation commonly become by it more productive as the nature of the product is rendered more valuable. In every important attainment each one of us should endeavour to leave the world better than we found it, that, even as regards others, we may not have lived in vain.

Dose.—Of the powdered seeds, from gr. xv. to 3ß and upwards.



Hepatica.

HEPATICA TRILOBA.—THREE-LOBED-LEAVED HEPATICA.

CLASS XIII. POLYANDRIA.—ORDER III. POLYGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

HEPATICA (from *hepaticos*, of or relating to the liver. The three lobes of the leaves have been compared to the three lobes of the liver.) Dill. giess. p. 108, t. 5. Lin. hort. cliff. 223. D. C. syst. 1, p. 215, prod. 1, p. 22. Involucrum of 3 entire leaves, in the form of a calyx, close to the flower. Calyx of 6 to 9 petal-like coloured sepals, disposed into two or three series. Stamens and ovaries numerous. Carpels tail-less. Small perennial early-flowering evergreen herbs, with 3-7-lobed leaves. Scapes 1-flowered, numerous, rising from the same root. Leaves cordate, 3-lobed; lobes quite entire, ovate, acutish; petioles and scapes rather hairy. Native of many parts of Europe in hedges and shady places. Colour of flowers usually blue; found in gardens, but seldom if ever in the fields, with white, brown, flesh-coloured, red, purple, violet, or variegated flowers, but never yellow; single or double. Leaves green, purplish or variegated underneath. All these varieties are designated under names in old Books.

The Hepatica is a swiss species of the anemone; there are many varieties, both single and double, varying in colour, and generally blowing in great profusion in February and March. The flower lies a year within the bud, complete in all its parts. The double flower last longer than the single, and are much handsomer. They thrive best when exposed only to the morning sun; cold does not injure them. They should be kept moderately moist, and may be increased by parting the roots, which should be done in March, when they are in flower; but not oftener than every third or fourth year. Frequent removal weakens, and sometimes destroys them.

Culture. Hepaticas are great favourites for the flower-border, both as being evergreen in their foliage, and for their abundant early blossoms and great variety of colours and shades. A light loam or peat soil suits them best; and they are easily increased by dividing the plants at the root, in spring. When gardeners see its pretty flowers put forth, they say "the earth is in love, we may sow with confidence."

A remarkable instance is recorded of change of colour in these flowers. Some roots of the Double Blue Hepatica being sent from a garden in Tothill-fields to another at Henley upon Thames, when they came to blossom produced white flowers, owing to the difference of the soil: but it is yet more curious, that being returned to their former station, they resumed their original blue colour.

* From facts we infer that Plants have been created on the system of having a living principle within them, capable of producing various results. This principle is not their material organization, because this, when they die, like the animal body on a sudden death, subsists in all its completeness at that moment, and yet it can no longer perform any of the functions of its life. It is also something different from heat, light, and electricity, which can act upon its frame, while it abides there, because neither of these ærial fluids can supply its place or do its offices after its departure. It is distinguished from its own, and from all inorganic matter, by its peculiar power, which life possesses in both plants and animals, of counteracting the laws of chemical affinity while it is in the organic frame, altho these begin to operate irresistibly as soon as it has retired. Humboldt remarked this law, by which no vegetable suffers putrefaction or decomposition in any part until its living principle has retired from it: then a leaf changes, and a flower decays, and a branch withers, but not till life has left that part.

Vegetable life resembles nothing known in nature but animal life, and with this it has a striking analogy. Many of their functional operations we have noticed to be alike; and these, in both, require the presence and co-operation of their living principle, and cease in both when that is withdrawn.

Its presence and activity first appear in the germination of the seed or bud, as they do in the animal egg. In plants, germination seems to have a specific and regular term of germination in each particular

species. Adamson has given this table of the periods in which the following Seeds germinate after being sown:—

Wheat; Millet	1 day.	Purslain	9 days.
Spinach; Beans; Mustard	3 days.	Cabbage	10 —
Lettuce; Aniseed	4 —	Hyssop	30 —
Melon; Cucumber; Cress	5 —	Parsley	40 or 50 —
Radish; Beetroot	6 —	Almond; Chesnut; Peach	1 year.
Barley	7 —	Rose; Hawthorn; Filbert	2 years.

By steeping the seed in the chlorine gas, the process was hastened: cress seed then began its germination in 32 hours.—Achard found that they would not grow in heterogeneous hydrogen gas. Loud. Enc. 195. But though cold represses it, yet this repression only causes it in the regions of frost and snow, to spring up, as soon as the brief season of heat occurs, with a rapidity which the temperate climates do not experience. A Lapland and Siberian Yew exhibits remarkably rapid vegetation, beginning and fruiting in a single month; thus

July 1.—Snow gone.
9.—Fields quite green.
17.—Plants at full growth.
25.—Ditto in flower.
Aug. 2.—Fruit ripe
18.—Snow.

And from that time snow and ice to the 23rd June, when they begin to melt.

It can lay dormant without expiring, in some species, when it seemed to have forsaken them. Thus Mosses 'are extremely tenacious of life; and *after being long dried*, easily recover their health and vigour by moisture. Their beautiful structure cannot be too much admired.' Sir J. Smith, Intr. 493.

This living principle has the singular property of remaining dormant and inert for years or ages, without therefore ceasing to exist. We all know that seeds may be kept a long while unsown, and yet grow whenever planted in a suited soil. This, again, is like animals that have been found inclosed in trees, and yet have revived. When plants are buried in the ground to a greater depth than is natural to them for their proper growth, they do not vegetate; but they do not therefore die; they retain their power of vegetation to an unlimited period; and when, by any accident, brought so near the surface as to suit their evolution, they begin immediately to grow. If the ground in old established botanic gardens be dug much deeper than ordinary, it frequently happens, that species which have been long lost are recovered, from their seeds being latent in the soil. Ground that has not been disturbed for some hundred years, on being ploughed or turned up for any considerable depth, has frequently surprised the cultivator by the appearance of plants which he never sowed, and often which were then unknown to the country. A field that was thus ploughed up near Dunkeld, after a period of 40 years rest, yielded a considerable blade of Black Oats, without sowing. It could have been only from the plough's bringing up to the surface seeds that had been formerly too deeply lodged for germination.—Loud. Encyc. Gard. 194. Some ground turned up in Bushy Park in winter, which had probably not been disturbed since the time of Charles I., was covered in the following summer with Tree Mignonette, Pansies, and Wild Raspberries, none of which grow in the neighbourhood.—Jesse's Gleanings. This has arisen from ancient seeds becoming deeply covered, and there remaining inert, but yet retaining their principle of life. This principle has been ascertained to be capable of existing in this latent state for above two thousand years unextinguished, and springing again into active vegetation as soon as planted in a congenial soil. It even remains unimpaired in blighted corn, and will grow from that as vigorously as from the perfect seed. But yet, although thus abiding in vitality in its dormant state for an indefinite length of time, such is its delicacy of existence when once roused into its living action, that it perishes for ever if it be prevented from continuing its growth.

This living principle can subsist in all its reproductive power in fruit trees, from one to two centuries, and in others for many more. Some of the poisons affect the activity of this principle, though they do not destroy it.

But although we can observe these effects, we do not know what vegetable life really is. We can discern it to be something distinct and different from all the known material agencies of nature. These can excite and affect and assist the agency, but cannot without it do what it does, nor be what it is. We are therefore authorized to deem it a peculiar sui generis principle, as distinct in plants from their material laws and substance, as life and instinct are in animals.



Cicuta virosa.

CICUTA VIROSA.—LONG-LEAVED WATER HEMLOCK, OR COWBANE.

CLASS V. PENTANDRIA—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Fig (a) represents the calyx; (b) the calyx with the germen and styles; (c) a perfect flower.

THIS plant has often been confounded with the *Ænanthe Phellandrium*, in consequence of the same English name being applied to both. By comparing the two plants, together with the botanical descriptions of each, their specific differences will be readily distinguished, and the virtues of each accurately ascertained.

This plant, which is much more powerful in its effects than the *Conium maculatum*, is supposed by Haller and many others to have yielded the celebrated Athenian poison: and as goats will not touch the common Hemlock, there is some reason to think that it is the species referred to by Lucretius:

————— Videre licet pinguescere sæpe cicuta
Barbigeras pecudes, hominique est acre venenum.

The *Cicuta virosa* is by far the most active of the poisonous plants of Great Britain; fortunately, however, for us, it is somewhat scarce, or at least, very local in this country. It grows in several parts of England, in ditches, and by the sides of rivers and lakes, flowering in July and August. Sir William Hooker, in his "*Flora Scotica*," enumerates the following as its principal stations in Scotland: the side of Loch-end, near Edinburgh; Pow Mill, Kinrosshire; in marshes near Forfar Loch; Otterton Loch, Fifeshire; about Mugdoch, Bardowie, and Douglaston Lochs; Loch near new Kilpatrick; and also near Glasgow, where it occurs in great abundance.

The root is perennial, tuberous, hollow, with many whorled fibres, and divided by transverse partitions into numerous cells. The stem, like the root, is very large, hollow, leafy, branched, furrowed, smooth, and rises to the height of three or four feet. The leaves are bi-ternate, of a bright green colour, and stand upon long foot-stalks; the radical ones pinnated; the leaflets deeply serrated, tapering at each end, from one to two inches long, and more or less decurrent. The flowers are produced in large, many-rayed umbels, partly terminal, and partly opposite to the leaves. The general bractees are linear, seldom more than one or two, and frequently entirely wanting; the partial ones numerous, narrow, pointed, and unequal. The calyx consists of five ovate, acute, somewhat unequal, permanent leaves. The flowers are very small; the petals five, white, nearly heart-shaped, and incurved at the apex; the filaments are thread-shaped, spreading, about the length of the corolla, supporting roundish anthers; the germen hemispherical, ribbed; the styles two, filiform, at first short and erect, but subsequently elongated and spreading, with obtuse stigmas. The fruit is roundish, smooth, and divisible into two parts, having each one seed, convex, and marked with five flattish plane ribs, and on the other, with three prominent vittæ in the vallicules, which afford an excellent generic character.

POISONOUS EFFECTS AND MORBID APPEARANCES.—This violent poison produces the following symptoms:—Dazzling, obscurity of vision, vertigoes, cephalalgia, vacillating walk, agitation, dryness of throat, ardent thirst, eructations, vomiting of greenish matter, respiration frequent and interrupted, tetanic contraction of the jaws, lipothymia, sometimes followed by a state of lethargy, and coldness of the extremities; at other times a furious delirium, or attacks more or less approaching to epilepsy, especially in children, and young girls, which frequently terminate in death. In one or two cases, swelling of the face

has been noticed, with starting of the eyes. The most serious derangement of the nervous system has always been observed; and has been more or less severe, in proportion to the quantity that may have been taken; unless a part of the poison have been quickly ejected from the stomach. Wepfer, who wrote a work entitled "*Historia Cicutæ Aquaticæ*," narrates many cases of its effects on different men and animals. The following account is gleaned from his admirable treatise, and subjoined to it is one of the cases, in his own words:—

In the month of March, 1670, two boys and six girls found the roots of this plant in a meadow, and upon tasting them, perceiving that they were not unpleasant, all partook of them. The two boys, who ate a large quantity, were soon after seized with pains, loss of speech, an abolition of all the senses, and terrible convulsions. The mouth was so closely shut, that it could not be opened by any means. Blood was forced from the ears, and the eyes were horribly distorted. Both the boys died in half an hour from the first accession of the symptoms. The six girls, who had taken a smaller quantity of the roots, were likewise seized with epileptic symptoms, but in the intervals of the paroxysms some Venice treacle dissolved in vinegar, was given them; in consequence of which, they vomited and recovered: but one, the sister of the boys who died, after she had vomited, had a very narrow escape of her life; she lay nine hours with her hands and feet outstretched and cold. All this time she had a cadaverous countenance, and her respiration could scarcely be perceived. When she recovered, she complained a long time of pain in her stomach, and was unable to eat any food; her tongue being much wounded by her teeth, during the convulsive fits.

Mr. A. S. Taylor observes, that *Cicuta virosa* has given rise to several fatal accidents—its roots having been mistaken for parsnips, and that Dr. Badgley has communicated some cases of poisoning by this plant to the Montreal Medical Gazette (June 1844):—Four children, between five and seven years of age, ate the roots of Water-hemlock by mistake for parsnips. Within half an hour, they were all seized with extreme nausea, burning pain at the epigastrium, and colicky pains in the bowels: they all complained, on reaching their homes, of sickness, for which warm milk was administered to them. Efforts to vomit were induced: in one, there was full vomiting, but in the other three nothing was ejected from the stomach. The pains gradually increased in two of them; and, in the space of about two hours from the time of their eating the roots, they were labouring under complete coma, with tetanic convulsions,—the jaws rigidly fixed, profound stertor, and the whole face puffed and bloated, having precisely the appearance of the head of a person who had been for some hours under water; pulse intermitting, sometimes imperceptible. Emetics were exhibited, but without effect; and enemata of castor-oil and oil of turpentine were employed with great relief. The child who had eaten most sparingly had taken warm milk, and had vomited freely. One died in three hours; the others recovered.

Dr. Schlesier met with the following case:—A girl, æt. eight, who had eaten this plant, was found lying quite insensible. Her respiration was feeble, and rattling; the pulse soft, small, and scarcely perceptible; the pupils dilated and fixed; the face pallid; limbs flaccid; abdomen distended; and there was general coldness of the surface, with an entire loss of the power of swallowing. Stimulating embrocations and cataplasms were applied, and after some hours the pupils contracted; the body became warm; the breathing easier; but there were involuntary motions of the limbs. There was a slight return of consciousness and the power of speaking, but the difficulty of swallowing continued; and the patient died in about sixteen hours. (Canstatt's Jahresb. 1844, v. 296.)

Schwencke, a German writer, also gives an account of four boys, who partook of this plant, three of whom died. The internal surface of the stomach was highly inflamed, and the brain gorged with blood. Boerhaave narrates some cases, where those who were vomited with the sulphate of zinc, recovered.

"Trois soldats allemands périrent en moins d'une demi-heure on trouva les membranes de l'estomac perforées chez l'un des trois, corrodées chez les deux autres. L'estomac était rempli d'une écume blanchâtre. Les intestines, les poumons, et le cœur étaient flasques, et flétris, les vaisseaux veineux pleins d'un sang très-fluide."—*L'Histoire de l'Académie des Sciences de Paris, année 1715.*

Linnaeus, in his *Flora Lapponica*, gives a long account of a fatality which befel the cattle, and which he was enabled to arrest, by ascertaining the important fact, that it was entirely owing to their eating the *Cicuta virosa*.



Cleome speciosissima.

CLEOME SPECIOSISSIMA.—SHEWY CLEOME.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, CAPPARIDEÆ.—THE CAPER TRIBE.

RAISED in the Garden of the Horticultural Society from seeds sent by Dr. Deppe from Xalapa. It is a tender annual, well adapted for planting among other border annuals in the summer, when it will ripen its seeds if the season is favourable; for a greenhouse it is less suitable, its leaves having little beauty; but it is always advisable to have a plant or two in reserve under glass to secure seeds, in case those in the open air should fail. Flowers late in the summer.*

Without affirming a plant to be a real animal, as some of the Grecian philosophers imagined, we shall best understand its true nature and construction, by considering it as an animal in the principle of its systematic form; but without being sentient or intelligent; and differing also in one essential point, in the matter of its composition. They are distinguished also by another general peculiarity in their material nature. Animal bodies seem, by some interior tho yet unknown process, to produce lime—plants, never; but these, as their appropriate function, appear to generate carbon instead. The absence of any intellectual quality makes their principle of life to be very dissimilar to, or at least very distinct from, that of animals.

Most vegetables have an upright body, with vessels ascending and communicating with each other, as in us, but with sap instead of blood; with woody fibres, instead of bone; with pith, instead of brain and nerve; with bark or rind, instead of skin or hide. Their leaves imbibe it, as we breathe it, and also light and moisture; and in their continual motion, answer the purposes of our respiration and exercise. They also imbibe and expire an aërial fluid, as we do, tho with this difference, that they emit oxygen gas, under the influence of the solar rays, while animals absorb and retain it. They require food, as we do, but their roots are their mouths. But all vegetables are fixed in their place of growth; they have no locomotive power. Where they are born, they live and die. This circumstance would alone make them a peculiar class of beings, if they had every other similitude to animal existences. They are living beings, but with no power of spontaneous moveability from their first station of development.

The seed contains the embryo plant in the little corculum, which all, on being carefully opened, display. It is familiarly called the heart of the walnut—the little figure at one end of all nuts and kernels. Vessels extend from this to the substance in which it lies, which has received the name of Cotyledon. If this be single, as in the grasses and corn, it is a mono-cotyledon seed and plant; if, as in the larger herbs and trees, it consists of two lobes, they are called di-cotyledons; if no such are discernible at all, they are termed acotyledon plants, which in some, and perhaps in most countries, are the most numerous. All plants consist of two substances, vessels and cellular tissue. In general language, what is not one, may be deemed the other.

The seed of plants resembles the animal ovum or egg. The access of a certain degree of heat is necessary to begin the activity and development in both; and when that occurs to the seed, in a proper soil and place, and with sufficient moisture, Vegetation begins. The cotyledons swell and rise in the seminal leaves. The corculum lengthens downwards in the germ of the radicle, and its upper part ascends in the plumula. A nutritious matter passes from the seminal leaves to the radicle, which daily elongates. The process of vegetation thus beginning from the cotyledons, steadily proceeds under its subsequent nourishment from the earth and air, until the perfect plant is formed.

* Botanical Register.

Nothing is more curious in nature than the persevering efforts made by the living principle in plants to force their radicle downwards; whatever efforts may be made to give it another direction, are constantly baffled by the growing power, which knows where its nutrition lies, and will go rightly to seek it. No animal can display a more persisting volition. Yet when circumstances become such, that its food is not downwards, but upwards, it will then, and then only, rest in that inverted and ascending position. Earth is not so essential to vegetable growth as moisture; for even trees will grow in water only. Earth is but the bed in which the vegetable nutriment is best prepared and presented to the absorbing roots.

When the plant develops in the fitting soil, the roots nourish it from below, and the leaves above contribute also their auxiliary supplies. Buds emerge in due time from the stem or branches, each of which may be considered as a new vegetable, growing from its parent, but living in unseparating union with it, yet only in close association, for it seeks its own independent nurture by its distinct, tho' strictly combined root.

Plants with few and small leaves depend chiefly on the soil. Those with many and large ones, more on the atmosphere. But some can find nutriment, and grow, even from animals. Thus cryptogamic plants have been found vegetating on living wasps in the West Indies. This curious fact has been also noticed elsewhere. They will even grow in the stomach of living animals; for several instances of this have occurred, in which the force of vegetation has prevailed over the animal's digestive power; at least, in those who were entirely carnivorous.

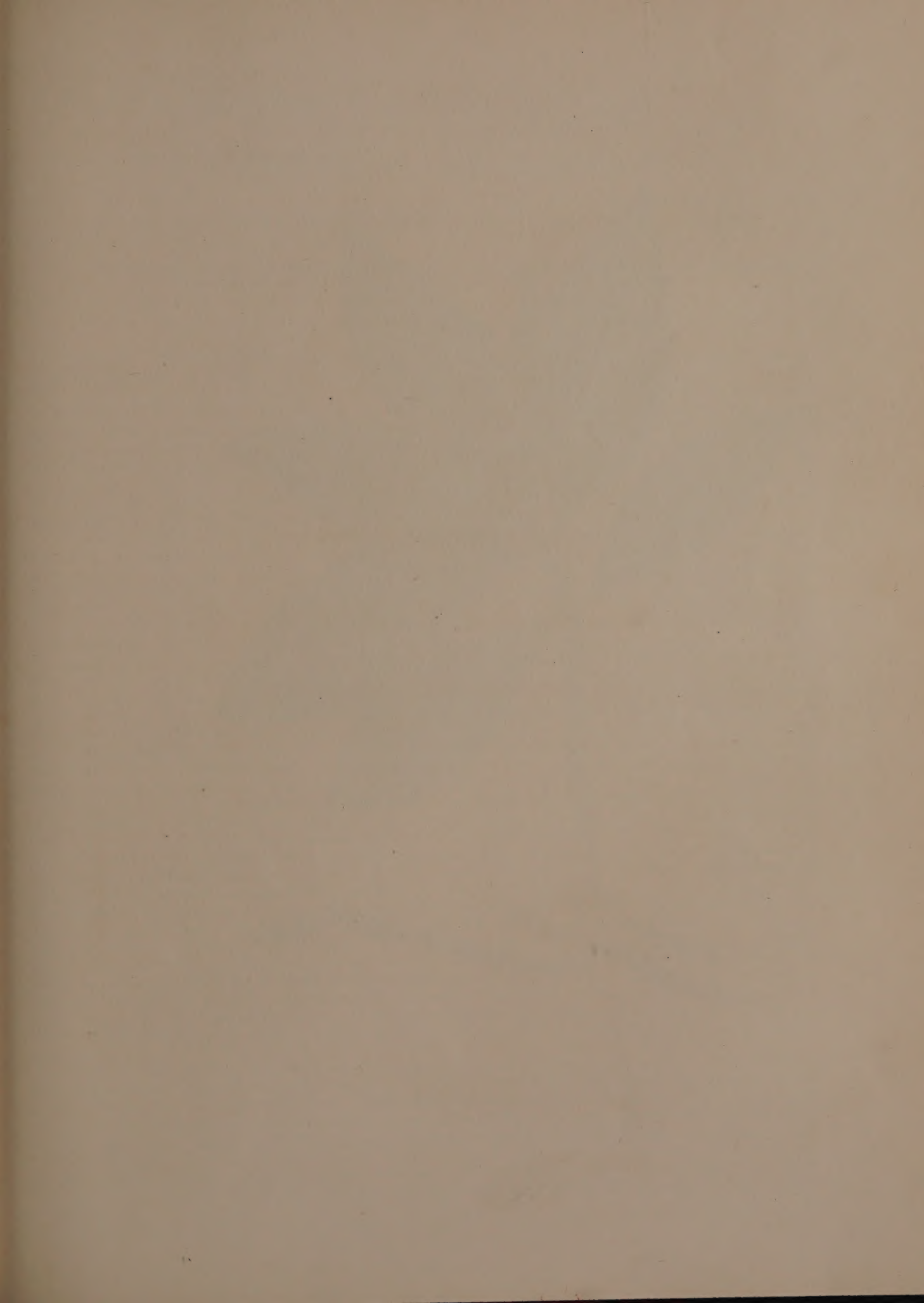
Warmth and moisture usually commence the process of germination as soon as they concur to the seed: but if the due means for the further nutriment do not accompany the growth, the process stops, and the plant soon dies. Some vegetables—the parasitic tribes—fasten on a larger plant or tree, and fixing in that their roots, derive food from its nutritive juices. The living principle exerts itself with singular force and apparent judgment in searching for its nutrition when the ordinary sources and supply of it fail. The main fluid in vegetables is the sap. 'It is really the blood of the plant, by which the whole body is nourished, and from which the peculiar secretions are made.'

Vegetables are not generally affected by the narcotic poisons, but they will absorb arsenic by their vessels and cellular tissues. Iodine facilitates the germination of seeds much more than chlorine, if they be watered with a solution of it: even those which have apparently lost all vital power, may frequently be made to germinate by Iodine.

Light represses the evolution of the seed, but is essential to the production of the florification and fruit; yet, as if to show us that all things are but what they are specifically organized and actuated to be, and never are the chance productions of blind necessity, there is one plant which has been so formed as to flower *only* in the dark—the night-flowering *Cereus*. But all such exceptions in nature are never casual, but always regularly arise from a peculiarity of structure, which is adapted to cause the particular result, and which is always constant in the species in which it occurs. Plants will germinate in rarefied air, but not rapidly.

The parts of plants have a singular homogeneity, or sameness of nature and properties. Roots may be made to produce leaves, and buds of leaves may be transformed into buds of flowers. If a tree be inverted by planting it by the stalk, its roots then disclose leaves, and its branches send out roots. Plants grow most in the night and in cloudy weather: at noon, all increase is suspended. Between morning and noon, and noon and evening, it is but small. But flowers advance more in the day, and especially in the meridian light and heat. Some plants and trees will continue to vegetate, tho' overflooded by sea water. So tenacious of its vitality and power, their living principle is often found to be.*

* Turner's Sacred History.





Cephaelis Ipecacuanha.

CEPHAËLIS IPECACUANHA.—IPECACUAN.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, CINCHONACEÆ.—THE CINCHONA TRIBE.

Fig. 1. the interfloral bracteas; 2. the germen and calyx, styles and stigmas somewhat magnified; 3. fruit of the natural size; 4. corolla laid open to show the anthers; 5 corolla, calyx, and germen, a little magnified.

ALTHOUGH the root of Ipecacuan has been employed as a valuable article of the materia medica, yet the botanical characters of the plant which produced it remained unknown till professor Brotero, of Coimbra, determined the genus to which it ought to be referred, with the assistance of observations made in Brazil, on living plants, by Bernardo Gomez, a resident medical botanist. From his description and figure, published in the sixth volume of the Linnean Transactions, which we have copied, it is called *Callicocca*, but it has since been shown to belong to the genus *Cephaëlis*. The plant is perennial, a native of moist woods, near Pernambuco, Bahia Rio Janeiro, and other provinces of Brazil; flowering from November to March, and ripening its berries in May. It is called *Picacuan*, or *Ipecacuanha*, by the natives of some parts of Brazil; *poia do mato* and *do botico*, by those of the southern provinces; and *cipo*, by others, which is the name often given it by the Portuguese settlers.

The root is simple, or somewhat branched, and furnished with a few short radicles; it is roundish, most frequently perpendicular, but rarely slightly oblique; from two to four inches in length, or more, and two or three lines in thickness: irregularly bent, externally brown, and divided into numerous prominent, unequal, somewhat wrinkled rings. The stem is slightly shrubby, procumbent or creeping at the base, then erect, and rising from five to nine inches in height; it is round, about the thickness of a common quill, smooth, and without leaves; below, brown and knotty, with the scars of fallen leaves, the internodes upwards gradually increasing in length; near the top, it is pubescent, green, leafy, for a year or two simple, then throwing out a few rather crooked, knotty runners, taking roots irregularly at the knots, and producing one or two new stems, about half a foot apart. The leaves are from four to eight, near the summit of the stem; they are almost sessile, opposite, spreading, ovate, pointed at both ends, three or four inches long, one or two broad, and perfectly entire; of a deep green above, besprinkled with roughish points, smooth, or rarely beset with a few scattered hairs; underneath, pale green, and the younger ones somewhat pubescent, with a rather elevated rib, and alternate, nearly parallel lateral veins, curved at the ends. The petioles are short, channelled and somewhat hairy. At the base of each pair of leaves are a pair of interpetiolar stipules, deeply cut into awl-shaped divisions, sessile, shrivelling, equal to the petioles in length, and with them embracing the stem, being the rudiments of the supplementary leaves, which when all developed, form whorls in the *Rubiaceæ*. The flowers are aggregated in a solitary head, a little drooping, set on a round downy footstalk, terminating the stem, and encompassed by a four-leaved involucre. The florets are sessile, from fifteen to twenty-four in number, and separated by chaffy bractes, the length of the florets. The bractes are pubescent, entire, sessile, green, varying in form, sometimes long, and egg-shaped, sometimes rather obtusely lanceolate, and sometimes, but rarely, in size and figure resembling the leaflets of the involucre. The leaflets of the involucre are subcordate, acute, entire, almost sessile, slightly waved, and hairy; the two outer ones largest, and all a little longer than the florets. The calyx is urceolate, and small, superior, membranous, persistent, and with five blunt teeth. The corolla is synpetalous, the border shorter than the tube, woolly about the throat, swelling upwards, and divided into five ovate, acute, spreading segments. The filaments are short, capillary, inserted into the upper part of the tube, and bearing oblong, linear, erect anthers. The germen is ovate, surmounted by a thread-shaped style, the length of the tube, surrounded at the base with a short nectariferous rim, and terminated by two obtuse stigmas the length of the anthers. The fruit is drupaceous, of a reddish purple colour, becoming wrinkled and black, and containing two smooth oval seeds.

It appears that the first European who brought Ipecacuanha into use, was a native of Brazil, whose name was Michael Tristam. He speaks of it as a remedy for dysentery. Piso afterwards describes it and speaks of two sorts, the white and brown. But we are indebted to Helvetius for bringing it into general use, under the patronage of Louis XIV. from whom he received a thousand pounds, to reveal the secret medicine with which he so successfully treated dysentery. Besides the brown Ipecacuanha, there is another sort, brought from Brazil, which varies in appearance from the former; and some have supposed that these differences are owing to accidental circumstances, such as the place of growth, the kind of soil &c.; but on the authority of M. Gomez, the common brown Ipecacuanha of the shops is yielded by the

Cephaelis *Ipecacuanha*, while the *white* is the root of the *Richardsonia Brasiliensis*, which is exported largely to Portugal. Besides these the name of *Ipecacuan*, which is a compound of *ipi*, the Peruvian word for root, and *Cacuanha*, the name of the district where this root was first procured, has come by a common license of language to mean *vomiting root*, and is given to various species of *Cynanchum*, *Asclepias*, *Euphorbia*, *Dorstenia*, &c., and with regard to their comparative power, De Candolle says, that vomiting is produced by twenty-two grains of the *Cynanchum I*; by twenty-four of the *Psychotria emetica*; and by from sixty to seventy-two of the *Viola calceolaria*.

QUALITIES AND CHEMICAL PROPERTIES.—The roots of ipecacuan consist of two parts, an internal ligneous axis resembling a thread, upon which the annulated bark seems strung like beads. The first is inert, the second contains the active principles; hence, for medical use these should be separated, the cortical portion alone being worthy of preservation. Pelletier found on analysis that 100 parts of the bark yielded 16 parts emetine, while the woody axis afforded only 1.15, so that the difference of the action is satisfactorily accounted for. Powdered Ipecacuan has a sickly odour, and a bitterish acrid taste; and on those who pulverize it, sometimes excites such powerful effects, as to produce nausea, faintings, and spitting of blood.

MEDICAL PROPERTIES AND USES.—The utility of Ipecacuanha is generally known and very properly appreciated. As an emetic, it operates in doses of from five to thirty grains, surely and efficiently; without depressing the system at large, like many other emetics, or injuring the mucous membrane of the stomach; it is therefore, to be preferred as a mere evacuant of this organ; and if we wish to induce its speedy operation without exciting much nausea, we can give it in the fullest doses with perfect safety. Its power as an emetic has been rather undervalued in one particular view; for, if *opium* be taken, recourse is generally had to violent remedies, which by simple contact with the stomach, when in a torpid condition, cannot fail to produce injurious results. We remember, says Professor Burnett, to have heard Dr. Currie narrate a case of this kind, when the sulphates of zinc, and of copper, failed to produce their accustomed effects; he therefore poured some boiling water on a quantity of powdered Ipecacuanha, and as soon as it was cool enough caused large doses to be swallowed, which were the speedy means of causing vomiting, and of saving the life of the patient. Since then, we have borne this in mind: and in two or three similar cases, have found the *unstrained infusion* quite equal to its task.

Ipecacuanha is sometimes employed in a full dose on the accession of the paroxysm of intermittent fever; and by destroying the link which held the chain of diseased sympathies together, it has often succeeded in cutting short the disease. Paroxysms of spasmodic asthma, also, often yield to the same treatment; and in the more chronic form of that disease, small doses, advantageously produce both expectoration and perspiration. In chronic dysentery and diarrhoea, it is a most useful medicine, in small doses; and we think, says Professor Burnett, that its power over these diseases may be attributed to the following circumstances; in the first place, it has a tendency to excite *diaphoresis*, by which the circulation is equalized, and a great determination of blood to the diseased parts is taken off; secondly, it sometimes, even in *very* small doses, excites nausea, and gentle vomiting, which not only check arterial action in a powerful manner, but by this very inversion of the peristaltic motion of the intestines, destroy the harmony of disordered actions; and thirdly, when vomiting is not produced, it appears to promote secretion in the lining membrane of the bowels, whereby a healthy condition is eventually re-established. Given in doses of half a grain even, it produces the last-mentioned effects on the stomach; and is, therefore, frequently prescribed in cases of dyspepsia, attended by a foul tongue. Under the name of Dover's powder, they form one of the most powerful and useful sudorifics that can be employed for acute, or chronic rheumatism, and for eruptive diseases that are disposed to recede. Nauseating doses of Ipecacuanha are also useful for whooping cough, epilepsy, and amaurosis.

Preparation of Coloured Emetine.—Reduce Ipecacuanha to powder, and digest it in ether at 60° to dissolve the fatty odorous matter. When the powder yields nothing more to the ether, exhaust it again by means of alcohol. Place the alcoholic tinctures in a water-bath, and re-dissolve the residue in cold water. It thus loses a portion of wax, and a little of the fatty matter, which still remained. It is only necessary farther to macerate it on carbonate of magnesia, by which it loses its gallic acid; to re-dissolve it in alcohol, and to evaporate it to dryness. But pure emetine is not obtainable in this way, although it may serve for medical purposes. It presents itself in the form of transparent scales, of a reddish brown colour, having scarcely any smell, but a bitter though not disagreeable taste. It supports a temperature equal to that of boiling water, without any change: it is highly deliquescent, soluble in water, and uncrystallizable.

Action of Emetine on the Animal System.—Experiments have shown that this substance, given to dogs and cats, to the extent of from half a grain to two or three grains, produced vomiting, followed sometimes by long protracted sleep: but when given to a greater extent, such as ten grains, it produced upon dogs repeated vomiting, accompanied by stupor, in which the animal, instead of recovering, as in the other case, commonly died in the course of twenty-four hours. On opening the body, the cause of death was discovered to be a violent inflammation of the pulmonary tissue, and of the mucous membrane of the intestinal canal, from the cardia to the anus—phenomena very analogous to those described by Majendie, in a separate memoir on the action of tartar emetic. The same effects are produced whether the emetine be injected into the jugular vein, or simply absorbed from any part of the body.

Two grains taken on an empty stomach, gave rise to protracted vomiting, followed by a marked disposition to sleep. Sometimes a quarter of a grain will be sufficient to excite nausea and vomiting.

OFF PREP.—Pulvis Ipecacuanhæ Compositus. L. D. Vinum Ipecacuanhæ. L. E. D.



Lobelia Fulgens.

LOBELIA FULGENS.—FULGENT LOBELIA.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, LOBELIACÆ.

Fig 1. The stamens exhibited, showing their union at the anthers. Fig. 2 The pistil with the corolla and calyx removed.

LOBELIA: from Mathias de Lobel, a Flemish botanist, who was physician to King James I.

GENERIC CHARACTER.—*Cal.* Perianth one-leaved five-cleft, very small, growing round the germ, withering; toothlets nearly equal. *Cor.* one-petaled, irregular; the tube cylindric, longer than the calyx, divided longitudinally above; border five-parted; divisions lanceolate, of which the two superior ones are smaller, less reflex, more deeply divided, constituting an upper lip; the three inferior ones more spreading, frequently larger. *Stam.* Filaments five, awl-shaped, the length of the tube of the petal, connate above. Anthers connate into an oblong cylinder, gaping five ways at the base. *Pist.* Germ sharp-pointed, inferior. Style cylindric, length of the stamens. Stigma obtuse, hispid. *Per.* Capsule ovate two or three-celled, two- or three-valved, gaping at the top, girt by the calyx. *Seeds* many, very small. *Recept.* conic.

SPECIFIC CHARACTER.—*Leaves* oblong, lanceolate, rather serrate, slightly villose; flowers in a spike.

Root white and very fibrous. Leaves closely succeeding each other on the stalk; they are lanceolate, of a blueish green, with a kind of pubescence on its surface giving it an appearance of velvet. Stem erect, rising to the height of about three feet. The flowers are of a brilliant scarlet, and form a spike at the end of the stem.

The splendour of this herbaceous perennial is such as to call forth the admiration of every beholder. Whether it be intermixed in the herbaceous border, or in a bed forming a group of the hardy species of this genus, among which there are many possessing much beauty, it will nevertheless be prominent for brilliancy. It may be grown to great perfection in pots, for the purpose of ornamenting flower-houses during the summer months; for this purpose it should be cultivated by means of artificial heat in the early part of the season, and may by this method be made to obtain the height of five or six feet, although in the open border it rarely exceeds the height of three feet; its earliest flowers appear in July, with a succession until the end of August.

Every facility is afforded by this plant for rapid propagation and general cultivation: it freely increases by its roots, which may be separated in the month of March, very small portions of which will produce plants.

It thrives well in a light rich earth, composed of portions of light garden mould, decayed leaves, and rotten manure. It is a native of North America. The date of its introduction is not correctly ascertained.*

The milky juices of these plants, although often acrid, and sometimes poisonous, vary in the degree of their acidity, and are even occasionally mild and insipid, as is the case in *L. tenella*. Their milk, especially that of the species growing in warm climates, contains caoutchouc; and from one, hence called *L. caoutchouc*, this very useful substance is procured. *L. inflata* has been much commended for the relief it affords in difficulty of breathing, and it appears to have been administered in asthma, and even in croup, with much advantage; it is both emetic and diaphoretic, but it should be exhibited with caution, for several cases are on record in which death has been caused by too large doses: *L. longiflora* is also poisonous; and, from its destroying horses that feed upon it it has been called in St. Domingo *Chattea cavallo*; and in Spain where it

* Flora Conspicua.

is cultivated, *Rabienta cavallos*. The negroes resort to it occasionally as a poison; Jacquin says the juice, if accidentally applied to the eyes, brings on violent inflammation. *L. urens* is likewise a very noxious plant, but *L. Tupa* appears to be the most acrid and deleterious of the whole. Feuillée says, that even the odor of the flower will cause excessive vomiting; and, if applied to the skin, or taken internally, its acridity produces violent inflammation and pain, often followed by death. *L. syphilitica* has been much extolled for its influence in certain cachectic disorders, and *L. cardinalis* has been used as an anthelmintic, but neither of them are now held in much esteem. Thunberg mentions a species of *Lobelia*, a native of the Cape of Good Hope, the roots of which are eaten by the Hottentots, who call the plant *Karup*.*

The kindred nature of all plants is surprisingly shown by the power and effect of their growing and fructifying when GRAFTED on each other—one organization attaching its vascularity to that of another, and feeding on its sap. The Ancients took some pleasure in these experiments, for Plutarch saw and notices, in a garden on the Cephissus, an Olive upon a Juniper, a Peach upon a Myrtle; Pears upon an Oak, Apples on a Plane-tree, and Mulberries upon a Fig. In Holland a Rose was grafted on an Orange-tree; and, in our times, Carnations have been engrafted on fennel, and a Peach upon a Mulberry. So an inhabitant of Lyons inserted on the same stem red and white Grapes, Peaches and Apricots. Such facts prove the absolute similarity in nature of the different classes of the vegetable kingdom. Their general system and principle of life are the same. It is the specific and purposed variation of their organization which, from the same material elements, causes the specific diversities of their products to appear. No result is a random accident.

Plants have been manifestly designed and framed on the principle of improvability. This also highly distinguishes the latent powers of their living principle, and its vast superiority over inorganic matter. It is a truly wondrous faculty, for it is one of the greatest distinctions of man. Animals have it to a certain degree, but very limited; and apparently far less than Vegetables. The productivity of animals cannot be increased like that of plants. The human capacity for progression is not more clearly visible than that of which so many vegetables have been found susceptible, that it may not unreasonably be inferred to be a law of their constitution. Very agreeable, but surprising, transformations have arisen from this property. The ROSE is the product of cultivation. The original plant, from which all our beautiful varieties have proceeded, is considered by Botanists to be the common wild Brier. Our PLUMS are the cultivated descendants of the Sloe; the Peach and Nectarines, of the common Almond tree; Filberts are the improvements of the wild Hazel; the delicious Apples, whose species may be now reckoned by hundreds, are the cultured successors of the small austere Crabs and Wildings, which Swine will scarcely eat; the original Pear is a petty fruit, as hard and crude. Our Corn was once in a state very like Grass; our Cauliflowers, Cabbages, and other domestic vegetables are the artificial products of human skill and of vegetable improvability. But these improvements require continual cultivation to make permanent, or Nature will in time resume her pristine state.

It is this undiminishable and undecaying property in plants, which may rescue us from that chimerical dread of a superabundant population of the Earth, under which we have been labouring for the last thirty years, until Mr. Sadler's tables, calculations and reasonings, have at last rescued us from it. A great mistake has been prevailing on this subject. The true law of nature was misconceived. Partial effects were taken to be the general rule, and the real agency greatly overrated; and thereby an imaginary law has been assumed, which has never operated as was alleged. In nature, the law of population has never exceeded that of the productive power of vegetable life, and never will. All that concerns human beings, has been made upon a principle of benevolence. The same principle continues the system, and superintends the working, and will always adapt the provision to the necessity, and supply further assistance if new exigencies should require it. But nothing supernatural on this point is likely to be wanted. Cultivated produce has hitherto outrun population, in every country, and there is every appearance that it will always do so. Two laws are visibly in operation in nature; one, that it shall not produce spontaneously—the other, that its produce shall be always increasable by human labour and skill. Ordinary, but diligent, exertions of these have hitherto abundantly sufficed for all that has been needed. Local distress may arise from temporary seasons and want of intercourse, but never from a failure in the powers of vegetable nature.†

* Burnett's Outlines of Botany.

† Turner's Sacred History.



Chelidonium majus.

CHELIDONIUM MAJUS.—COMMON CELANDINE.

CLASS XIII. POLYANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, PAPAVERACÆ.—THE POPPY TRIBE.

Fig (a) represents a petal; (b) a stamen with its anther; (c) the stigma at two different periods of its growth; (d) the pod and seeds.

COMMON Celandine, or Greater Celandine, so named in contra-distinction to *Ranunculus Ficaria*, Pilewort Crowfoot, which was called by the old botanists Lesser Celandine, is a perennial plant, growing wild in hedges and uncultivated grounds, especially on chalky soils, in Britain and other parts of Europe. It delights in moist, shady situations, growing principally among rubbish, in the neighbourhood of villages, and flowering in May and June. "We perceived it," says Professor Burnett, "in the garden hedge at the Spaniards, on Hampstead Heath, and also near Downshire Hill; as well as by the road side near Richmond, in Surrey, plentifully." It is one of those plants to which, on account of the very acrid and poisonous qualities of its juice, we have allotted a place in the present volume.

The Celandine rises from a spindle-shaped root, with a round leafy, somewhat hairy, branched stem, swelled at the joints, to the height of two feet. The radical leaves are numerous, smooth, very deeply pinnatifid, or divided to the rib into two or three roundish and indented lobes, of which those of the extremities are the largest, of a bright green colour on the upper side, and glaucous or bluish-green underneath. The leaves arising from the stalks are of the same form, but of a paler colour, and placed alternately. The flowers, which are of a golden-yellow colour, are borne in small umbels on long, generally hairy footstalks, arising from the axillæ of the leaves. The calyx is inferior, consisting of two roundish ovate, concave, acute, deciduous leaves. There are four roundish, spreading petals; the filaments are numerous, usually about thirty, shorter than the corolla, having oblong, compressed, obtuse, erect, two-lobed anthers. The germen is superior, cylindrical, the length of the stamens, terminated by a small obtuse, heart-shaped, or cloven stigma, without a style. The seeds are numerous, ovate, smooth, with a crest along the upper edge, and contained in a linear, somewhat cylindrical pod, of one cell and two deciduous valves. They are disposed in two rows, on short stalks along a marginal receptacle, between the edges of the valves.

A variety with very hairy stalks, and lacinated petals, has been supposed by M. De Candolle, and Lamarck to be a distinct species. It is mentioned by Clusius, Bauhine, and several other of the old botanists; it was found plentifully in the former part of the last century, among the ruins of the Duke of Leeds seat at Wimbledon; and, according to Lamarck, was cultivated in the royal garden at Paris, a little before the French revolution.

The generic appellation *Chelidonium*, from *χελιδον*, a swallow, is said to be expressive of a popular tradition among the ancients, that swallows made use of its juice to restore the sight of their young if blinded. A more probable notion, however, is, that it derives its name from the circumstance of its flowering about the time when these birds make their first appearance in spring.

QUALITIES.—Both varieties of Celandine agree in their medical qualities. The whole plant is very brittle, and exudes, when broken or wounded, an orange-coloured, fetid juice. Its taste is intensely bitter and acrid, occasioning a sense of burning in the mouth and fauces, similar to that produced by Cayenne pepper, which lasts for a considerable time. Both water, and rectified spirit extract nearly the whole of the active matter, which is most powerful in the root. The juice of the leaves is yellow, and gives a green tincture to rectified spirit; that of the root is of a deep saffron colour, and tinges the same menstruum of a brownish yellow. The pungency they possess is not of a volatile kind, for hardly any of it rises in distillation; yet it is lessened by drying the plant, or by inspissating with a gentle heat the spirituous or watery infusions. The parts of the plant employed in medicine, are the roots and leaves, particularly the former.

POISONOUS EFFECTS.—The juice of this species is a violent acrid poison, producing inflammation in the textures to which it is applied. A writer on poisons, in the *Edinburgh Encyclopedia*, says he has seen

speedy death produced by it; and from the following experiments made by M. Orfila on dogs, it would appear that it proves fatal when introduced into the stomach, and applied to wounds.

1st. Three drachms of the watery extract of Celandine, were introduced into the stomach of a small, feeble dog, and the œsophagus was tied. At the end of six minutes the animal made violent efforts to vomit; four hours after, he was lying on the side; he made deep inspirations; sensibility and mobility were diminished to such a degree, that the organs of hearing and vision were no longer capable of receiving impressions; he was not able to stand, and died a very short time after. The stomach contained a small quantity of a fluid excessively viscid, and of a brownish colour: the mucous membrane was of a bright red throughout its whole extent, and of a blackish red in its folds; the intestinal canal was not altered; the lungs were of a reddish colour, crepitating, and appeared not to be affected.

2nd. At three o'clock, an incision was made in the inside of the thigh of a small dog, and a drachm and a half of the watery extract of Celandine dissolved in a small quantity of water, was applied to the wound. At five, the animal experienced nothing remarkable. The next day, at nine in the morning, he was found dead. The digestive canal exhibited no sensible lesion; the wound was inflamed, and the lungs somewhat livid.

3rd. Four ounces of the juice of Celandine obtained from the leaves, were introduced into the stomach of a dog of middle size; the œsophagus was tied. The animal made efforts to vomit, moaned, and became insensible. He died ten hours after. The mucous membrane of the stomach was inflamed, and the lungs presented, here and there, livid patches, somewhat distended with blood.

From the preceding facts it results: 1st, that Celandine and its extract produce serious symptoms, followed by death; 2nd, that their deleterious effects seem to depend on the local irritation they excite, as much as on their absorption and action on the nervous system; 3rd, that they appear to act on the lungs.

No remedy in the nature of an antidote has been proposed for this poison, beyond evacuation, diluents, and the usual antiphlogistic treatment.

MEDICAL PROPERTIES AND USES.—Notwithstanding the extravagant eulogiums that have been bestowed upon this acrimonious plant by some of the modern, as well as ancient physicians, it is rarely administered internally. The virtues attributed to it are those of a stimulating aperient, diuretic, and sudorific. It was formerly regarded as a powerful deobstruent, and supposed to be particularly efficacious in the removal of obstructions of the liver and other viscera, in promoting expectoration, in dropsies, and in the cure of intermittents, in herpetic eruptions, and even in pulmonary consumption. Tragus greatly extols its virtues in plague; boiled in vinegar, with the addition of *theriaca*, he affirms that it produced a profuse perspiration, and immediately removed the disease. It is said to have obtained a considerable reputation during the "sweating sickness" in this country, in which disease it was esteemed a specific. It must, however be observed, that some writers have considered it a dangerous internal remedy if too large a quantity be administered; it will consequently require great caution in its use, beginning with small doses, and increasing them gradually. Some authors recommend an infusion of it in wine as the best preparation, which will take off a great deal of its acrimony.

Joseph Miller, in his "*Botanicum Officinale, or Compendious Herbal*," published in London, 1722, speaking of Celandine, says, "it is aperitive and cleansing, opening obstructions of the liver and spleen, and of great use in curing the jaundice and scurvy. Some reckon it cordial, and a good antidote against the plague. Some quantity of it is put into *aqua mirabilis*. Outwardly it is used for sore eyes, to dry up the rheum, and take away specks and films, as also against tetters and ring-worms, and scurfy breakings-out."

Externally the juice has been long known as a popular remedy, to destroy warts; and it is said to be very efficacious in stimulating and healing old and indolent ulcers, speedily removing fungous flesh, and restoring a great degree of activity to the torpid and indolent granulations. For the removal of warts, the method of applying it is, simply to break the stalk, and to touch the part affected with the yellow juice that exudes. Fabricius Hildanus employed this juice successfully in opacities of the cornea; while Ettmuller, Geoffroy, and all the writers of that day, attest its efficacy when diluted with milk or some other bland fluid, in the removal of specks from that membrane. A cataplasm formed of the bruised leaves, and stalks, was formerly supposed to be an infallible remedy in herpes, and has been extolled for curing the itch.

DOSE.—Of the dried root from 3ss to 3j is a dose; of the fresh root infused in wine or in water the dose may be about $\frac{3}{4}$ ss.



Geoffroya Inermis.

ANDIRA INERMIS.—SMOOTH BASTARD CABBAGE-TREE.

CLASS XVII. DIADELPHIA.—ORDER IV. DECANDRIA.

NATURAL ORDER, PAPILIONACEÆ.—THE PEA TRIBE.

THE Smooth Geoffroya, Andira Inermis, or Bastard Cabbage-tree, universally known in the West Indies by the name of the Worm Bark-tree, is a native of Jamaica and Martinique, growing in the low savannas. It is a lofty tree, whose wood is white, and so tough as to be preferred beyond all others for the shafts of carriages. It was first introduced into this country by Messrs. Lee and Kennedy, who cultivated it at Hammersmith about the year 1778.

This tree rises to a considerable height, sending off several branches towards the top of a straight, smooth trunk. The external bark is smooth and grey; internally it is black and furrowed. The leaves are pinnate, composed of six or seven pairs of lanceolate-acuminate, smooth leaflets, about three inches long, of a dark-green colour, standing in pairs on short foot-stalks, with a terminal one. The flowers are disposed in very large, much-branched, terminal, downy panicles. The calyx is bell-shaped, and divided into five obtuse segments. The corolla is papilionaceous, of a pale rose-colour, and is described by Dr. Woodville as consisting of a roundish, concave *vexillum*, notched at the apex, two oblong, obtuse, and somewhat shorter *ale*, and an obtuse, divided *carina*. The filaments, nine of which are connected at the base, bear roundish anthers; the germen is oval, with a tapering, curved style, and hooked stigma. The fruit resembles a small plum, is pulpy, marked on each side with a longitudinal furrow, and contains a hard nut or seed, separated into two valves.

The generic name Geoffroya, was given by Jacquin, in honour of Stephen Francis Geoffroy, a Parisian physician, who wrote a treatise on materia medica, in which an analysis is given of every officinal plant, and who was author of several ingenious essays in the Mémoires de l'Acad. des Sciences. The trivial name, *inermis*, was applied to this species by Dr. Wright, to distinguish it from another (*G. spinosa*) which is armed with spines.

The bark of the cabbage tree has a disagreeable, sweet, mucilaginous taste, and a slight but disagreeable odour. The pieces, as they are imported into this country, are externally of a grey colour; internally blackish and furrowed; when reduced to powder resembling that of jalap. Its soluble parts seem to be composed chiefly of extractive, resin, mucus, a peculiar narcotic principle, and saccharine matter.

MEDICAL PROPERTIES AND USES.—Cabbage tree bark was first brought into notice as a vermifuge by Mr. Peter Duguid,* and its properties as an anthelmintic have been fully confirmed by subsequent writers; but we are chiefly indebted to Dr. Wright, of Jamaica, for the fullest information, both in respect to the botanical character and virtues of this tree. "This bark, like most other powerful anthelmintics, has a narcotic effect, and on this account it is always proper to begin with small doses, which may be gradually increased till nausea is excited, when the dose for that patient is ascertained." It is also powerfully cathartic, and in an over dose excites violent vomiting, fever, and delirium: when these effects follow an over dose, the stomach must be washed with warm water; the patient must speedily take castor oil, and use plenty of lime-juice beverage for common drink; vegetable acid being a powerful antidote in this case, as well as in an over dose of opium. Care must be taken that cold water be not drank during the operation of this medicine, as it is apt to occasion the same untoward effects as an over dose. This bark (in powder) acts briskly cathartic in doses of thirty or forty grains; but its anthelmintic effects are more powerful when given in the form of decoction, of which an adult may at first take four table-spoonfuls, and gradually increase the dose if sickness be not excited: in this way it seldom fails in destroying worms, and bringing them away in great quantities. "It must not be concealed that fatal accidents have happened from the imprudent administration of this bark, chiefly from overdosing the medicine. But this cannot detract from the merit of the cabbage-bark, since the best medicines, when abused, become deleterious." Upon the whole the bark is considered a valuable anthelmintic, although in this country it is not held in general estimation. This bark may be taken in the form of powder, decoction, extract, or syrup. The decoction is prepared by boiling one ounce of (fresh dried or well preserved) bark in a quart of water over a slow fire, till the water is of an amber colour, then strain off and sweeten with sugar; this should be used immediately as it does not keep many

* Essays and Observations, Physical and Literary, vol. ii. p. 264.

days. Syrup of cabbage-bark: to any quantity of the above decoction add a double portion of sugar, and make a syrup; this will retain its virtues for many years. The extract is prepared by evaporating a strong decoction in *balneo mariæ* to the proper consistence.

The powder may be taken in doses of from thirty to forty grains, the syrup from three to four table spoonfuls, and the extract from three to four grains.

OFF.—The Bark.

OFF. PP.—Decoctum Geoffroyæ Inermis, E.

"It is necessary," says Mr. Turner, "that we should have right notions of the system on which our earth has been framed, and of the plan and purposes of all its departments, in order to perceive what the Divine mind has intended by our terrestrial creation, and thereby to judge more soundly on the great component whole. This knowledge will assist us to appreciate His ends and operations in the course of nature which He has established, and in the direction and application of His providential economy to ourselves, as well as to our inferior fellow-creatures. The more fully we know and the more justly we think on the vegetable and animal kingdoms, we shall be the better prepared to comprehend the principles and the history of His dealings with the human race. This world is manifestly not our world only. We are linked in it with innumerable fellow-beings, of very varying kinds and qualities. They are co-tenants with us of our common earth. We cannot live in it without their association and services. Relations, therefore, subsist unceasingly between us, which cannot be destroyed without destruction to ourselves; and from this view of the real state of things, it is an object of great intellectual interest and importance to become acquainted with the most material phenomena of these classes of animated nature, however dissimilar and subordinate they seem to be to our more gifted order. Do not, therefore, think me tedious if I particularize a few facts on this curious subject.

From all the circumstances thus far enumerated, we may infer—

That the Vegetable classes have been created upon a system of progressive improvability—and also of an indefinite productiveness, which can be increased to the utmost extent of any probable human demands upon it.

That the application of human skill, care and diligence to educe these beneficial results, has been made the condition of their appearing; but that these valuable qualities will never be exerted in vain on this interesting order of beings.

That human welfare and comfort have been a principal object of the Creator in designing and producing His vegetable world, though it has been also made subservient to animal subsistence; and that these are peculiarly connected with the cultivation of it. Animal food leads to the animal habits of hunting and pasturage; both of which, though pleasing as occasional employments, yet when made the character and chief pursuits of a tribe or nation, tend to animalize our nature and arrest our social progress. Ancient Scythia, and the modern Tartars and Arabs, and North American Indians, are commentaries on this principle. Agriculture and gardening, and their consequential occupations, accustom the human mind to the quiet, patient, contented, domestic, social and civilizing habits, on which human happiness and improvement mainly depend.

The vegetable kingdom, in its varied flowers, foliage, stems and graceful and delicate expansions; in its playful branches and gentle movements, and in its multiplied fruits and useful products of numerous sorts and of universal application, display a peculiar goodness, liberality and kindness in the Divine mind towards His human race—a desire to please, to interest and to amuse us with the most innocent, continual, accessible, and gratifying enjoyments. For, plants peculiarly address themselves to three of our most used senses—the taste, the smell, and the sight; while the ear is also soothed by the whispering of the branches, and the touch by the softness of the verdant and floral foliage, and of most of the fruits. We see that the consolidated wood supplies us with numerous conveniences of private and public use; and from plants has arisen that most needful and comfortable of all things beyond the limits of the torrid zone—the grateful warmth and use of our domestic fires. Even in this respect we may perceive that there has been a benevolent foresight and provision specially exerted, in order that this daily comfort might continue to accrue to us, after our diffusing population should have levelled the forests which supplied the fuel. Buried in the earth just deep enough to remain unknown till wanted, that primeval vegetation, which was overwhelmed and uprooted by the deluge, has during its long sepulture become converted into bituminous coal, sufficient to yield us fire for all our purposes, though every wood should be consumed, and mankind last for more ages than they are likely to continue. In this beneficial supply of a mineral so invaluable, we have an instance of a great destruction directed by a prospective benevolence, to prepare and produce for a future age, one of the kindest additions to human comfort. What a demonstration of the most deliberate goodness presiding amid the most awful displeasure."



Paris quadrifolia.

PARIS QUADRIFOLIA.—HERB PARIS, ONE-BERRY, OR TRUE-LOVE.

CLASS VIII. OCTANDRIA.—ORDER IV. TETRAGYNIA.

NATURAL ORDER, ASPHODELEÆ.—THE ASPHODEL TRIBE.

The figure represents an entire plant with its creeping root, four-leaves, and four-fold single flower; (a) the flower separate, with its 4 sepals, 4 petals, 8 stamens, and 4 stigmas; (b) the berry entire, with the persistent perianth; (c) a section of the same to show the 8 seeds; (d) the germen separate, with its 4 styles; (e & f) seeds.

OF the genus *Paris* two species only are known, *Paris quadrifolia*, which is a native of most countries of Europe, and *Paris polyphylla*, a plant which has lately been discovered in Nepal. The former is a perennial plant, growing in groves and moist woods in many parts of Britain, but rare. It occurs plentifully in a grove at Cossey, near Norwich, and was found by Mr. Miller, in a wood near Hampstead; by Mr. Blackstone, in Hanging-wood, near Hareford, Middlesex; at Selborne, in Hampshire, by Mr. White, at Kimbolton, by Mr. Fernie; and in Scotland, in a wood about a mile South of Newbattle, near Dalkeith, by Dr. Parsons. It flowers in May and June.

The rhizoma is creeping. The stem rises about a foot high; it is simple, erect, smooth, round and naked, except at top. The leaves, whose number is usually four, sometimes five or six, are ovate, pointed, entire, smooth, of a dull green colour, with three principal veins, and spreading horizontally in a sort of whorl on the top of the stem. The flower is solitary, on an erect angular peduncle, about an inch in length. The calyx consists of four lanceolate green leaves: the corolla of four linear acute ones, of a similar colour, and both remain till the fruit be ripe. The stamens, eight in number, have short filaments; the anthers, which are long, are inserted on both sides into the middle of the subulate threads, which continue beyond their apices. The germen is somewhat globular, of a violet colour, supporting four styles shorter than the stamens, with simple stigmata. The fruit is a purplish-black, four-celled berry, containing in each cell six or eight seeds in a double series. The generic name *Paris*, derived from *par*, equal, is said to have been given to the plant in reference to the regularity of its parts, four, or its multiples, prevailing both in the foliage, the flowers, and the fruit.

QUALITIES.—The leaves have a narcotic odour, and a peculiar taste, which is not disagreeable.

MEDICAL PROPERTIES.—Herb Paris is one of the tribe of vegetables called narcotic, which, when received into the stomach in any considerable quantity, produces violent effects upon the nervous system, such as nausea, vomiting, vertigo, delirium and convulsions; hence it has been ranked by most writers on the materia medica, among the class of poisons. Every part of the plant seems to possess this property, but the leaves and berries are supposed to be the most active. Linnæus assures us that the root, in doses of twenty to forty grains, operates as a gentle emetic, like ipecacuanha. MM. Coste and Willemet, who have investigated, with considerable ardour and success, the properties of plants indigenous to France, also recommend the root, in doses of from one to two scruples, as a substitute for that useful medicine. They state, that it sometimes operates as a purgative. Gesner asserts that the berries prove noxious to poultry; and Krockner was credibly informed that a child died in consequence of eating them. Bergius recommends the herb to be used externally in fomentations as a discutient, and internally as an antispasmodic, in the whooping cough, and various convulsive diseases. Parkinson says, "the roots boiled in wine help the colic, and the leaves applied outwardly repress tumours and inflammations." The root of the exotic species, *Paris polyphylla*, is known to be a very active poison.

The vegetable system, says the Author of "The Phenomena and Laws of Vegetation," like the animal machine, is a curious structure, though its form be less complicated. The plant will be found admirably

supplied with the requisite organs, put in motion by interesting mechanism. There is an elegant symmetry in some, and in others singular and fantastique forms; yet in both the arrangement and adaptation are equally wonderful. The vegetable being is built up and nourished by certain materials, that it collects generally from the earth, where its roots are usually fixed, by means of certain organs, and, circulating through the pipes with which its system is supplied, are appropriated and assimilated: these peculiar organs perform their several functions, and, as in the animal economy, deposit their respective elaborations where the secreted substance is wanted, and no where else. In the animal machine, unless when morbid action supervenes, ousious matter is not precipitated among the muscles, nor muscle among the nerves; so in the other, the elaborate sap contributes what is essential to the formation of *albumen* in its ascent; and in its descent, what is required for the growth of *liber*. The plant by these means increases in size and strength, and from an acorn becomes an oak, "whose seed is in itself." Through these curiously constructed system of pipes and cells, the noiseless and unobtrusive process of vegetation moves on, and the life of the plant is supported and continued. Its ultimate and external evolutions are subjects of interest and admiration, in the beautiful attire which adorns the plant; but the delicate and subtle chemistry, over which life immediately presides, is intercepted by a veil which defies the philosophy of man with all the keen scrutinies of his research.

Vegetable physiology is indebted to the labours of a multitude, who have successively interrogated many of the most elaborate phenomena of vegetation.

Botany is a simple term, but embraces a most comprehensive science. It is a grievous mistake to confine its application to mere nomenclature, and the limited knowledge of being able to discriminate one plant from another. If our studies terminate in these things, we are content with its alphabet, while the interest that pervades the natural history of vegetation, and its wondrous phenomena, are consigned to unmerited neglect. The simple acquisition of calling plants by their names, and distinguishing one from another, or even describing them in the barbarous jargon of latinity, so profusely displayed by some that bear the name, and effect the title of eminent botanists, excites our pity and regret for such a useless waste of time and talent, worse than misapplied, as it only serves to perpetuate the alchymy of science, and frighten, if not disgust, those who would otherwise enter upon the study, and pursue it with delight. Nomenclature is very well, and it is necessary; but we look for something more from those who *should* be qualified to give it. The petty details of a Latin description, in all the trifling of contemptible minutiae, draws a little too much on passive obedience and forbearance, when unaccompanied with a single allusion to its physiology, its use or adaption. Is it too much to call these individuals learned and laborious triflers; "pleased with a feather, tickled with a straw?" They obstinately withhold the key of knowledge from the individual who would willingly enter in by the gates of science, and form one to the banquet. Like the cuttle-fish, they render themselves invisible by an obscurity of their creation, and flounder in darkness. At best they resemble, with their *hortus siccus* in store, a mere collector of butterflies and moths, accompanied with a parade of names; while the possessor still remains like one of the heroes described in Parson's "Book of Fools." Far different is it with those who wish their fellows to join them, and enjoy the advantages and pleasures of science. Natural history is at the present moment in a most deplorable and repulsive state, from a phalanx of uncouth names, incessantly changing and changed by the caprice or whim of the individual who may spend a little more time on any specific subject of enquiry than his predecessor had done: in this way many plants have more than a half-dozen of names, dressed in turgid Greco-Latin. It is indeed desirable that this folly were at an end: I have no doubt numbers, as well as myself, feel the difficulties to be almost insurmountable.

The physiology of vegetation does not stop short with a description of the structure and attire of plants in their visible form and exterior; it investigates not only their organs, but their functions: it penetrates the history of the life of the plant, in its various evolutions of phenomena, and traces the progress of its annals from that point in its history when it is committed to the earth, under the form of an acorn, until it becomes the hamadryad of the forest,—“the monarch of the woods.”



Anthocercis littorea?

ANTHOCERCIS LITTOREA.—YELLOW-FLOWERED ANTHOCERCIS.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, SOLANEÆ.—THE NIGHTSHADE TRIBE.

1. Outline of one of the toothed leaves. 2. Calyx spread open, to show the 5 segments. 3. Corolla spread open, to show the stripes on the inside of the tube. 4. The 4 fertile Stamens, inserted on the contracted part of the tube, with the rudiment of a fifth between the two longest. 5. Ovarium, terminated by the Style and capitate Stigma
-

STEM suffruticose, erect, branched, from 1 to 2 feet high: *branches* smooth, furrowed from one leaf to the next, and terminated in a panicle of flowers. *Leaves* obovate, scarcely acute, smooth on both sides, slightly viscous, some entire, others more or less toothed, attenuated at the base. *Flowers* yellow. *Bractes* small, sharp-pointed, deciduous. *Pedicles* slender, smooth, three times the length of the bractes. *Calyx* 5-cleft, the laciniae subulate, about half the length of the tube of the corolla. *Corolla* campanulate, tube contracted at the base: limb equally 5-parted, the laciniae spreading, linear, acute, with revolute margins, nearly double the length of the tube. *Stamens* 4, inserted in the base of the tube, two long and two short, with a rudiment of a fifth between the two longest: *filaments* flat and fringed at the base, and tapering upwards, the points recurved, inserted in the back of the anthers, which are two-lobed; *pollen* cream-coloured. *Ovarium* pyramidal, smooth. *Style* smooth, longer than the stamens. *Stigma* capitate, fimbriate.

It is a soft wooded small Shrub, and is deserving a place in every Greenhouse or Conservatory, as it makes a grand appearance when covered, with its elegant striped yellow flowers. It is a hardy Greenhouse plant, and we believe would succeed well in the open ground, by the side of a wall facing the south, so as to be protected with a mat or some other covering in severe frosty weather, thriving well in a light sandy soil, or an equal mixture of light turfy loam, peat, and sand, will suit it extremely well; the pots in which it is planted to be well drained, that the wet may pass off readily, as it is apt to become sodden with too much moisture in Winter. It strikes readily from cuttings, planted under bell-glasses, either in sand or mould; or if planted under hand-glasses, in the open air, in Spring, they will root readily.

When the command was issued for the Vegetable Kingdom to arise, the whole of its numerous races either appeared simultaneously in every part of the globe, in immediate diffusion and completion; or they emerged on such particular portions only of the surface, as sufficed for the production of every species; and from these primitive localities were disseminated gradually and successively over the rest of the Earth. The Sacred Record does not decide or elucidate this point. It has preserved the mandate for their general creation, and declared its fulfilment, but has not described the manner or the extent of the first formation. Satisfied with asserting that all plants were the special and appointed creation of the same God, who made the rest of our globe and the starry orbs which surround us, it leaves the chronology of every local Vegetation, to be investigated and ascertained by human inquiry and patient consideration.

If we consult our historical and geographical communications on this subject, we find that the Vegetation of many countries which have been examined, and of all newly formed islands that have lately arisen, has been, and still continues to be, a progressive process; and we may trace it ourselves on many places near our domestic residence. We see the lichen class arise as their minute seeds descend; and decay and re-appear

from new germinal matter, till they have formed enough of vegetable substance for the sporules of the mosses, which at their seasons of fructification float extensively in the atmosphere, to fix on and to grow from. These mosses in like manner vegetate and decay, and on their decayed remains a new vegetation of the same sort springs up in like manner to die and become a thicker mould for the passing seeds of other plants to find sufficient for their germination. This process may be noticed on roofs, and in part on palings, only the latter, being perpendicular, the new seeds do not sufficiently fasten on them, but drop off to the ground. It may be seen more clearly on inclined tiling, and partly on the common roofs. There, if the experiment be made and be patiently watched for a few years, the progression will be distinctly seen. I have found Mosses arise upon the decaying lichens and new mosses, of a thicker foliage, grow upon the dead matter of the former ones; and the grasses afterwards appear, as soon as the decayed remains had become a sufficient soil for their germination. Every year thus produces a new bed of vegetable matter, which is frequented by the seeds of new plants, and in time, of trees. Thus, in the course of a few years, every new coral island that is made by its petty architects, and every volcanic one that arises in the sea, become, in no long time, covered with plants and trees.

As vegetation has thus disseminated itself in our own experience from country to country, and still continues to do so from places where it abounds, to every new surface in which it is deficient, it seems to be a reasonable presumption, that at the epoch of its creation some similar system was adopted for its diffusion. In the appointed spot of the Garden of Eden and in its vicinity, on the suited soils, all the families of the Botanical Kingdom may have simultaneously appeared as soon as the order for their production was expressed. All the previous preparations having been made, they would emerge simultaneously to the command. One large district, or island, with mountain, hill, marsh, heath and valley, would have been quite sufficient for primeval evolution of a sufficient number of every species. In this space, with those differences in the nature and elevation of the surface, all the known classes of vegetation might germinate and grow. Such a region appears now in one single island within the torrid zone, where both the alpine and the equatorial herbs and trees have been observed and discriminated by the scientific Botanist.

From such an originating region as this, the various plants, if left to the operation of their respective qualities, and of the natural agencies, which in the established course of things are gradually acting upon them, would be progressively disseminated into every other country, according as its various localities should be adapted to receive them. Few, if any, plants are strictly confined to one zone or latitude on the earth. All may grow every where, although in some soils and climates they will spread more numerous and grow more luxuriantly than elsewhere. It has been observed of the rocky places, where only the lower and smaller classes of vegetable can subsist, that the seminal particles do not settle and spring up from some, but yet will evolve in others. But each as it floats along the even-moving breeze, selects, as it were, its own suited bed of nutrition, and there unfolds its efflorescence and produces its successor. Aqueous plants would in like manner arise as their seeds were wafted to watery places. And in this way Vegetation may have originally spread from the district where it was flourishing, to those which it had not before reached. This progressive diffusion would journey far beyond the disseminating process of animals or man, and would so far precede them, that, long before they could extend their dispersing colonies around, the earth would be every where abundantly clothed with all that either could require.*

* Turner's Sacred History.



Malva Munroana.

MALVA MUNROANA.—MR. MUNRO'S MALLOW.

CLASS XVI. MONADELPHIA.—ORDER III. POLYANDRIA.

NATURAL ORDER, MALVACEÆ.—THE MALLOW TRIBE.

THIS plant was found by Mr. Douglas abundantly upon the barren plains of the Columbia, in July 1826, and is closely allied to *Malva miniata* of Cavanilles.

In our gardens it does not possess any very striking beauty, but this is probably owing to a want of the right mode of managing it, for Mr. Douglas speaks of it as one of the most beautiful of the plants he collected; and it appears from his dried specimens that it really is a far more showy plant when wild than when cultivated. It suffers much in beauty from rain, which discharges the rich vermilion of the petals, and gives the flowers a dirty red appearance. We have hitherto seen it cultivated in a rich border, or in peat earth, in such situations it does not thrive, it would perhaps be better in a coarse gravelly soil, among shaded rockwork.

Mr. Douglas named the species in compliment to Mr. Munro, the gardener to the Horticultural Society.

It does not ripen seeds, but is easily increased by cuttings; if allowed to form a single bush, its ascending branches root at the base, and increase plentifully.

Covered all over with whitish down. *Stem* ascending, from a foot and a half to 2 feet high, taper. *Leaves* roundish, cordate, somewhat 5-lobed, toothed; the middle lobe larger than the rest. *Flowers* panicled, arranged rather on one side. *Calyx* campanulate, 5-cleft, with an involucre consisting of three setaceous deciduous leaflets. *Corolla* vermilion-coloured, roundish, with rounded, emarginate petals. *Cappella* very numerous, capsular, one-seeded, 2-valved, reticulated, arranged in a circle.*

The study of botany is not confined to the details of science, to the structure of plants, or even to an acquaintance with those curious facts which betoken that the hand of a Great Master has been occupied in their construction. It embraces a wider field, and has conferred incalculable blessings on the whole family of mankind; for if we except the inhabitants of the Arctic regions, who principally subsist upon the flesh of seals, there is scarcely any description of civilized human beings who may not gratefully acknowledge the innumerable benefits which they have derived from an acquaintance with its two most important branches; the virtues of different plants and their wonderful adaptation to the wants of animals and men. They have prepared the way for blessings of a more exalted character, and inclined the once wretched inhabitants of the Society and Friendly Islands, with the miserable rangers of Chickamaugh, and those of various other districts, not only to appropriate the unexplored riches of their soil, but also to receive with thankfulness the offers held out to them for ameliorating their moral as well as physical condition.

But not to multiply examples. "If you would behold an instance of what may be effected in any country by an acquaintance with the vegetable kingdom," quit for a moment the banks of the Seine, and ascend one of the steepest summits of the mountains of the Vosges. "Come and behold the Ban de la Roche: climb with me the rocks so sublimely piled on each other, which separate this canton from the rest of the world; and though the scene and the climate appear unfavourable and forbidding, I venture to assure you an ample recompense for the fatigue of the ascent."†

In the reign of Louis XV. the whole of the country was uncultivated, and almost inaccessible, containing fourscore hungry and naked families, a starving population on a barren soil. The ground was naturally sterile, and evergreens, such as the lichens, mosses, horsetails, hepaticæ, confervæ, and the families which delight in elevated situations with little mould, formed the principal clothing of the heights of Ban de la Roche.

By means of the introduction of agriculture and an acquaintance with the vegetable productions, which by ameliorating the condition of the people, led the way for the arts of civilized life, the once miserable population of the Ban now live in respectability and comfort. This wonderful amelioration has been produced under providence by the wisdom, the zeal, and the perseverance of M. Jean Frederic Oberlin.

Descended from a learned family of Strasbourg, and educated at the college of that city, M. Oberlin brought to the Ban de la Roche extensive and practical knowledge, with an ardent desire of appropriating his various attainments in science, philosophy, and religion, to the temporal and spiritual happiness of his parishioners. At the first glance which he threw over the mountains destined to the scene of his ministerial labours, he perceived the necessities of the people, and the difficulties which opposed their removal.

* Botanical Register.

† Speech of M. Le Comte Francois de Neuf Chateau to the Royal Agricultural Society of Paris. Authority, Ban de la Roche.

To conquer the barrenness of the soil and obviate the coldness of the climate, it was necessary to ensure a certain degree of knowledge. For this purpose schools were regularly organized, a library formed for the private use of the children, a collection of indigenous plants arranged, an electrical machine and mathematical instruments procured, and the whole organized under the Pastor's wise direction, formed a beautiful and perfect system. Even when mechanically employed, the minds of the scholars were occupied in acquiring knowledge while they sewed, knit, or spun, their teachers exhibited the most useful indigenous plants, designed either for the food of animals or of men, and taught them their names. Plants, apparently useless and poisonous, were also presented and described, that they might avoid and extirpate them by degrees; and when they walked in the spring and summer, they searched for the plants, the names and properties of which they had learned in the winter. In such a situation it is impossible to calculate the advantage of this judicious system; and, in fact, during the disastrous months of 1817, when the harvest failed, and potatoes were extremely scarce, the correct acquaintance of the people with the vegetable productions of their canton contributed to prevent the most distressing consequences.

In order to habituate the children to healthy and innocent amusements, they were inspired with a taste for botanical pursuits. By teaching them to draw the flowers which they collected, a desire was excited to cultivate the objects themselves, and their parents were requested to give them little gardens for the employment of their industry and skill. The scholars, of twelve and fifteen years of age, wrote after the dictation of their teachers, lessons on agriculture and the management of fruit-trees, extracted by M. Oberlin from the best authors, these they committed to memory.

With a view to facilitate the progress of agriculture, a road was formed through the rocky districts of La Roche, where rocks hanging on the steep sides of a chain of mountains, and torrents pouring from their summits would, to a less daring spirit, have presented insurmountable obstacles. But every difficulty vanished before the enthusiasm of the villagers, and the energy of their indefatigable leader; for the Pastor, who on the Sabbath, pointed out to them the narrow way that leads to life, and exhorted them not to be weary in well-doing, was seen on the Monday with a pick-axe on his shoulder at the head of two hundred of his flock with an energy that braved danger and despised fatigue. Barriers were raised to prevent the sliding of the earth, and the mountain torrents stopped or diverted in their course, enormous masses of projecting rocks were blasted, a wall constructed along the Brusche, and an intercourse permanently established between the five villages, which before, in the heavy snows, were entirely separated from each other. In the course of this arduous undertaking implements were wanting, he procured them; expences accumulated, he interested his distant friends, and, in spite of every obstacle in two years the work was completed, and his ulterior plans completely realized. The exportation of potatoes then commenced, and their quality insured an advantageous sale in the market of Strasbourg.

Thus by the indefatigable exertions of the worthy Oberlin, the savage and barren district of La Roche gradually assumed the appearance of cultivation and of plenty. Esculents were generally introduced, and artificial grasses, flax, and the finest apples, pears, plumbs, nut and cherry trees naturalized to the soil, which was rendered more productive by means of manure, obtained from different vegetable productions, such as the leaves of trees, the stalks of rushes, mosses, and fir-apples with old woollen rags and shoes. Some of the natural productions of the country were appropriated to the use and varied the provisions of the inhabitants, such as the stripe flowered cabbage, common chick weed, dandelion, mountain willow herb, plantain, pimpernel, dock, valerian, bladder campion, watercress, &c. Corn-cockle was plentifully sown, and the seeds mixed with corn made bread. A small wine called piquette, was procured from wild cherry, juniper and dog-rose trees. Brandy from the dwarf and common elder berry. An essential oil from carraway seeds and beech nuts.

A law suit between the lords of the soil and the peasantry had subsisted for eight years, which impoverished both parties and diffused a spirit of litigation and of intrigues. Oberlin terminated this disgraceful and mischievous contention. Here was the ascendancy and the reward of virtue. A grateful deputation waited on the pastor of La Roche, presented to him the pen with which the solemn treaty had been signed and intreated him to suspend it in his study, as a trophy of the triumph of habitual benevolence and christian charity.

M. Oberlin modestly acceded, and acknowledged that the day on which that pen was used was the happiest of his life. It was, indeed, a simple trophy, but more splendid than the brazen column of Austerlitz, or the banners that once proudly waved from the gilded dome of the metropolis.

Such have been the exertions of M. Oberlin, and verily he has had his reward. The miserable inhabitants of the Ban have become happy, their sterile soil is clothed with corn and fruit-trees, and their meadows are filled with flocks; contentment has succeeded to despair, abundance to abject poverty.

To maintain the energy necessary to the fulfilment of his duties, under circumstances frequently the most discouraging, celestial influence was sought for and cherished. Amidst all his cares and labours he still found time for private reading and pious meditation, and often whole hours to prostrate himself at the footstool of that Being from whom he has derived strength "sufficient for his day."



Delphinium Staphisagria.

DELPHINIUM STAPHISAGRIA.—PALMATED LARKSPUR, OR STAVESACRE.

CLASS XIII. POLYANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

Fig. (a) represents the nectary; (b) the stamens; (c) the capsules.

THIS handsome plant is a native of Provence, Languedoc, and many other parts of the south of Europe. It is a biennial, and was cultivated here by Gerarde in 1596; it flowers from April to August.

Stavesacre grows to the height of one or two feet; the stem is round, downy, erect and simple. The lower leaves are nearly as large as those of the vine, palmated, and divided into seven lobes, which are oblong, ovate, veined, downy, sometimes acutely indented, and of a pale green colour: those on the upper part of the stem are gradually smaller, usually 5-lobed, and supported on long downy footstalks of the colour of the stem. The flowers are bluish or purplish, supported on long footstalks, and forms an elegant spiciform raceme at the extremity of the stem. The calyx is petaloid and deciduous, the upper sepal open, extended behind into a long tubular spur: the corolla is usually divided into four petals placed in front within the row or sepals; the two superior are narrow, small, and at the base drawn out into spurs like that of the sepal in which they are both inclosed; the outer two are roundish and plaited at the edges. The filaments are numerous, awl-shaped, and crowned with oblong yellow anthers; the germens are three, superior, close together, tapering, downy, and furnished with short filiform styles, terminated by simple stigmas. The three capsules are ovate-oblong, tapering, pointed, with one valve opening internally, and contains many rough, brown, triangular seeds.

QUALITIES AND CHEMICAL PROPERTIES.—The seeds of this species of *Delphinium* are rough and blackish without, and of a light yellowish colour within. Their odour is slightly foetid: to the taste they are intensely bitter, acrid and nauseous, and when masticated powerfully excite the salivary secretion and inflame the fauces. MM. Lassaigne and Feneulle have discovered in the stavesacre a vegetable alkali which they have named *delphinia*, from a supposition that the acrid qualities of the whole family depended upon this principle: an opinion, however, which has not been confirmed by the analysis of other plants belonging to it.

It is thus obtained: The seeds, deprived of their husks and ground, are to be boiled in a small quantity of distilled water, and then pressed in a cloth; the decoction is to be filtered, and boiled for a few minutes with pure magnesia; it must be re-filtered, and the residuum left on the filter; when well washed, it is to be boiled with highly rectified alcohol, which dissolves out the alkali, and, by evaporation, it is obtained as a white pulverulent substance, presenting a few crystalline points.

It may be obtained also by acting with dilute sulphuric acid on the seeds, unshelled but well bruised; the solution is to be precipitated by subcarbonate of potash, and the precipitate acted on by alcohol: but, obtained in this way, it is very impure.

Delphine, when pure, is crystalline whilst wet, but, on drying, rapidly becomes opaque by exposure to air. Its taste is bitter and acrid. When heated it smells; and, on cooling, becomes hard and brittle like resin. If heated more highly it blackens, and is decomposed. Water dissolves a very small portion of it. Alcohol and ether dissolve it very readily. The alcoholic solution renders syrup of violets green, and restores the blue tint of litmus, reddened by an acid. It forms neutral salts with the acids, which are very soluble; the alkalies precipitate the delphine in a white gelatinous state, like alumine.

Sulphate of Delphine evaporates in the air, does not crystallize, but becomes a transparent mass like gum. It dissolves in alcohol and water, and has a bitter acrid taste. In the voltaic current it is decomposed, giving up its alkali at the negative pole.

Nitrate of Delphine, when evaporated to dryness, is a yellow crystalline mass. If treated with excess of nitric acid, it becomes converted into a yellow matter, little soluble in water, but soluble in boiling alcohol. This solution is bitter, is not precipitated by potash, ammonia, or lime-water, and appears to contain no nitric acid, though itself is not alkaline. It is not destroyed by further quantities of acid, nor does it form oxalic acid. Strychnine and morphia take a red colour from nitric acid, but delphine never.

The *acetate of Delphine* does not crystallize, but forms a transparent hard mass, bitter and acrid, and readily decomposed by cold sulphuric acid. The oxalate forms small white plates, resembling in taste the preceding salts.

Delphine calcined with oxide or copper gives no other gas than carbonic acid. It exists in the seeds of the stavesacre, in combination with melic acid, and in company with the following principles;—1. A brown bitter principle, precipitable by acetate of lead. 2. Volatile oil. 3. Fixed oil. 4. Albumen. 5. Animalized matter. 6. Mucus. 7. Saccharine mucus. 8. Yellow bitter principle, not precipitable by the acetate of lead. 9. Mineral salts.—*Annales de Chim.* xii. p. 358.

POISONOUS EFFECTS.—Hillefield, as recorded in Orfila, gave some infusion of stavesacre to dogs, and the animals died, after having had vomitings, involuntary dejections, and general trembling, accompanied by great debility. Orfila also gave the powdered seeds to dogs, which are stated to have died from their effects; but it appears that the operation of tying the œsophagus, would of itself be liable to produce all the symptoms that were observed. From its effects when applied to wounds that were made in the thighs of dogs, Orfila infers that stavesacre is not absorbed, and that it produces local irritation, and sympathetic lesion of the nervous system.

MEDICAL PROPERTIES AND USES.—Stavesacre seeds produce vomiting, drastic purgation, and inflammation; and are never administered internally. Formerly they were used as a masticatory for tooth-ache; but they are too acrid to be recommended even for this purpose. Externally applied they are said to be efficacious in scabies, and fungous ulcerations; but their chief and most valuable virtue is that of destroying *pediculo* in the head, when mixed and used with hair-powder.

Delphine has not been employed as a medicine, nor are its effects on the animal economy known.

In one of those romantic spots usually denominated “Hollow ways,” which diversify the mild scenery of the lower part of Dorsetshire, a Greek inscription was recently observed, written by some stranger on a rock. It was this :—

“Time passes rapidly away.”

Underneath another hand had left the following:—

“Then improve it.”

I was one evening (says the Author of “The Wonders of the Vegetable Kingdom”) walking with a friend, who pointed out the rock and its inscription. Casual incidents sometimes make a powerful impression on the mind; whilst important ones of every day’s occurrence are little heeded. Nature has also inscribed on her works, that time passes rapidly away: and she teaches by her various operations that we should continually improve the portion which is assigned us. Let us then, my friend, listen to her instructions, and in the words of Dr. Watts, “Learn something from every thing which we see and hear.” Let us extract some intellectual improvements from “the mineral and metals, from the wonders of nature, among the vegetables and herbs, trees and flowers.” If these excellent and practical regulations were properly attended to, the most careless hours would turn to a happy account both here and hereafter. We should continually bring home treasures of useful knowledge; and, by habituating ourselves to an attentive consideration of the glorious order of nature, we should improve in wisdom and virtue, and be more prepared to enter on that state of exalted happiness where a consideration of the wonders of creation, as well as adoration of their Almighty Author, will probably form no inconsiderable portion of the felicity of the blessed.



Linum mexicanum L.

LINUM MEXICANUM.—MEXICAN FLAX.

CLASS V. PENTANDRIA.—ORDER V. PENTAGYNIA.

NATURAL ORDER, LINEÆ.—THE FLAX TRIBE.

OUR drawing of this rare species of Flax was made at Mr. Tate's Nursery. It is a very pretty half-hardy perennial, native of woods near Santa Rosa, in Mexico, where it was found by Humboldt and Bonpland. Probably propagated by cuttings.

For the following remarks upon this, and some neighbouring species, we are indebted to Mr. Bentham.

"The coalition of the styles in this, and several other species of yellow *Linums*, is a character which appears to have been generally overlooked in the distinction of the species. It is very remarkable in the *L. Macraei*, where the style is very long, and only slightly quinquefid at the apex: in the above *L. mexicanum* and in the *L. africanum* Linn. (*L. monogynum* Forst.) and *L. repens* Hamilt., the styles are connate up to about the middle of their length; and at the base only in the *L. ethiopicum* Thunb. (*L. africanum* Reichb. icon. exot. t. 46, non Linn.,) *rigidum* Pursh, *virginianum* Linn., and *mysurense* Heyne. In the *L. gallicum* Linn., *aureum* W. et K., *setaceum* Brot. (*L. bicolor* Schousb.,) *luteolum* Bieb., *nodiflorum* Linn., *strictum* Linn., *corymbiferum* Desf., *maritimum* Linn., *glandulosum* Moench., *quadrifolium* Linn., *trigynum* Roxb., and *tetragynum* Colebr., the styles are entirely distinct from their base.

In the *L. glandulosum*, *luteolum*, *nodiflorum*, and *corymbiferum*, the stigmata are not globular, as in most of the species of this genus, but elongated, and scarcely thicker than the styles.*

It is particularly desirable (says the Author of the Wonders of the Vegetable Kingdom) to connect botanical researches with the study of astronomy, as correctives of the apprehension which the latter is calculated to inspire, that our affairs are beneath the consideration of the great Creator of the universe. There is something inexpressibly awful and overwhelming in the thought, that the hosts of stars which shine above us are the suns of other systems; bestowing light, heat, and vegetation, on unnumbered worlds, which constantly revolve around them, calm, regular, and harmonious; peopled with myriads of intelligent beings, possibly endowed with like feelings as ourselves, and formed for endless progressions in perfection and felicity.

These perceptions of creative power tend not a little to depress the vanity of man, and to fill the mind with melancholy apprehensions; especially when we consider, that if the sun of this fair world was instantly extinguished, and the planetary orbs which attend him entirely annihilated, they would be no more missed than a grain of sand on the sea shore. The space which they occupy being so comparatively small, that "the chasm would be imperceptible to an eye that could take in the whole compass of nature, and pass from one end of creation to another."

It is scarcely possible to conceive a more humiliating thought, and the inference which arises from it is consequently this, that the great Author of nature, who has such a stupendous system under his care and superintendency, cannot be supposed to interest himself in the concerns of a finite creature. The human mind has a natural dread of being overlooked in the immensity of creation: its powers are inadequate to the right understanding of an Omnipresent Being, who upholds all things by his almighty power. David himself felt the force of this apprehension, though conscious that God was ever with him. "When I consider the heavens," said he, "the work of thy fingers, the moon and stars, which thou hast ordained. What is man, that thou art mindful of him? and the son of man, that thou visitest him?"

An attentive consideration of the minuter works of nature has a wonderful tendency to remove the melancholy impressions which such a view of things must necessarily excite. For who can observe the skill, beauty, and contrivance discoverable in the meanest flower, without being convinced that the Creator of the universe does not forget the humblest of his works. Hence it may be readily inferred, that if God has bestowed so much care and wisdom on an object of little worth, that he is not sparing of these in the concerns of reasonable beings, nor does he less regard order and fitness in the determination of their states. Dr. Price, in one of his "Dissertations," has admirably observed, "That there is not any thing which has a much greater tendency to give relief to a mind earnestly wishing to be satisfied of a wise superintendency in all that befalls it, than to contemplate the curious organization of an herb or flower, and the attention bestowed on even its outward figure; and then to consider whether it is probable, that the Being who so

* Botanical Register.

wonderfully wrought such a substance, can neglect an intelligent creature, or be inattentive to any circumstances of his existence; whether he, who has with perfect exactness adjusted the parts of dead matter to one another in the most trifling plant, must not be proportionably exact in what is of infinitely greater moment,—the adjustment of pain and pleasure to a human soul."

If unerring Wisdom so wonderfully manifests itself in the government of corporeal nature, what harmony may we not reckon upon in the direction of the intellectual world! What care and accuracy in disposing the states of individuals! What grandeur of plan, what perfection of order! Such are the conclusions which we are amply justified in forming from the wisdom discoverable in the whole creation. They are most consolatory, and perfectly consonant with the language of inspiration: "Consider the lilies of the field, how they grow. They toil not, neither do they spin. Wherefore, if God so clothe the grass of the field, which to day is, and to-morrow is cast into the oven; shall he not much more clothe you, O ye of little faith?" How animating was the effect produced by similar impressions on the mind of Mungo Park. He found himself in the midst of a vast wilderness, surrounded by savage animals, and by men still more savage. He was five hundred miles from the nearest European settlement, and, considering his fate as certain, he thought that he had no alternative, but to lie down and perish. At this moment the extraordinary beauty of a small moss irresistibly caught his eye, and, though the whole plant was not larger than the end of one of his fingers, he could not contemplate the delicate formation of its roots, leaves, and capsules, without admiration. Can that Being, thought he, who planted, watered, and brought to perfection in this obscure part of the world, a thing which appears of so small importance, look with unconcern upon the situation and sufferings of creatures formed after his own image? Thoughts like these would not allow him to despair. He started up, assured that relief was at hand, and he was not disappointed.

This striking anecdote forcibly recurred to my recollection during a solitary ramble on the seashore, while observing the *Iolium arenaria*, or sea-mat, growing on a bank of sand; and considering how wonderfully this valuable plant was adapted to its place of growth, and designed to answer the most important purposes.

It was a beautiful evening. The mighty waters rushed impetuously to the beach, and again receded, as if they heard the fiat of Omnipotence proclaim, that so far should they go, and no farther. The sun was setting amid clouds of gold and purple, and seemed to be passing through the portals of the heavens into some unknown world of glory. The nearest waves rolled in fine undulations, and reflected as they passed the dazzling radiance of his beams. In the distance, a deep sleeping mist gave to the blue fluctuating ocean an awful character of grandeur and extent. All was still in earth and air; not a single moving object met the eye. I seemed to breathe alone, surrounded by the immensity of creation. At length the moon arose in peerless majesty, and threw her silver mantle over the vast expanse of waters. It was a moment of deep feeling. Lord, what is man, that thou art mindful of him! I turned to the *Iolium arenaria*, and felt that the care of the Creator was extended to the lowliest of his works.

The train of ideas which had been thus pleasingly excited, still continued to occupy my mind, and led me to consider, as I returned home, how various kinds of plants are adapted to the sites they occupy, and the wants of the inhabitants.

It would be extremely interesting to divide the vegetable world into a natural classification; pointing out the various plants which in their medical and nutritious qualities are particularly appropriated to the use of man; those which are confined to the animal world; and such as afford food and shelter to an infinite variety of insect tribes. "Behold," said the Eternal, in the benediction which he bestowed on our universal parent, "I have given you every herb bearing seed, which is upon the face of all the earth, and every tree: and to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, I have given every green herb for meat." Such were the various uses which the great Creator assigned to the vegetable tribes, whilst at the same time he conferred on man the dominion of the whole creation. Linnæus has endeavoured to fill up the general outline; and judging that the various grasses and other plants, on which domesticated animals subsist, may be considered as subservient to the wants of man, he has appropriated to his use eight or nine hundred plants, the produce of his native country. Of these the cow consumes two hundred and eighty-six, in her usual pasturage; rejecting one hundred and eighty-four. The goat, four hundred and eighty-eight; rejecting ninety-two. The sheep, four hundred and seventeen; rejecting one hundred and twelve. The horse, two hundred and seventy-eight; rejecting two hundred and seven. The hog, one hundred and seven; rejecting one hundred and ninety. In this collection the plants which the animals eat with avidity are alone enumerated, with those which they carefully avoid; all the rest are indifferent, or eaten from necessity.



Prunus domestica.

PRUNUS DOMESTICA.—COMMON PLUM TREE.

CLASS XII. ICOSANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, POMACEÆ.—THE APPLE TRIBE.

THE plum-tree is frequently found growing wild in our woods and hedges, bearing flowers in April and May; but the country from whence it originally came has not been ascertained. "Whether," says J. E. Smith, "all our cultivated plums may formerly have originated from the *Prunus insitia* (Wild Bullace-tree), its thorns having disappeared by culture, like those of the pear-tree, is a question which no botanist can ever solve." With respect to the varieties, Parkinson, in 1629, enumerates no fewer than sixty, "all of which," he says, "are to be had of my good friend Master John Tradescant, who hath wonderfully laboured to obtain all the rarest fruits he can hear of in any place in Christendom, Turkey, yea, or the whole world." Professor Martin, in his edition of Miller's Gardener's Dictionary, also enumerates sixty varieties of the plum. We have now, however, nearly three hundred garden varieties.

The Washington, a modern variety, which is stated in the Pomological Magazine not to be surpassed in richness of flavour, beauty, and other good qualities, by any, is curious in its origin. The parent tree was purchased in the market of New York, some time in the end of last century. It remained barren several years, till, during a violent thunder storm, the whole trunk was struck to the earth and destroyed. The root afterwards threw out a number of vigorous shoots, all of which were allowed to remain, and finally produced fruit. It is, therefore, to be presumed that the stock of the barren kind was the parent of this. Trees were sent to Mr. Robert Barclay, of Bury Hill, in 1819; and in 1821 several others were sent to the Horticultural Society by Dr. Hossack.

The plum-tree rises about fifteen feet in height, and is destitute of spines. The leaves are pale green, oval, serrated, on short footstalks, and when young, convoluted and pubescent underneath: the stipules are pointed and placed in pairs at the base of the footstalks. The flowers are large on short peduncles, with a bell-shaped deciduous calyx, and five obovate white petals. The filaments are numerous and inserted into the calyx; the germen is round and supports a simple style. The fruit is an oblong drupe, internally consisting of a sweet fleshy pulp, and inclosing a smooth almond-shaped nut or stone.

The plum and almost all its species is very apt to run under ground, and produce suckers from the roots. Duhamel says that if plums are grafted low and covered with earth, they push out shoots which may be transplanted.

Plums of various sorts appear to have been introduced into England as early as the fifteenth century. These varieties came to us from France and Italy. The "green-gage" is the *Reine Claude* of France, so called from having been introduced into that country by the wife of Francis I. It is called Gage in England, after name of the family who first cultivated it here. The "Orleans" probably came to us when we held possession of that part of France from which it takes its name. Lord Cromwell introduced several plums from Italy in the time of Henry VII. The damson or damascene, as its name imports, is from Damascus.

In some countries, particularly in Alsatia, a considerable quantity of alcohol is produced from plums and cherries by fermentation.

Although in deference to our collegiate authorities, who follow Linnæus in associating the cherries and plums in the same genus, the cherry-laurel has been treated of here as a species of *Prunus*, it may be as well to observe that modern botanists have found it advisable to separate the cherries from the plums, and to revert to those distinctions which were acknowledged by Mr. Miller, and which have always been popularly maintained; for not only do the cherries and plums differ in the shape of the stone, but the drupes of the former are smooth and shining, while those of the latter are pruinous, or covered with a resinous secretion, commonly called *bloom*. But even the cherries thus separated from the plums, both need and admit of a further subdivision, as they differ in properties and habit, as well as in structure.

Professor Taylor tells us in Poisons, page 720—"That fresh and dried cherries, as well as the kernels and stones, yield prussic acid by distillation. The quantity yielded by the pulp of the cherry is exceedingly small, amounting to mere traces, but it is much greater in the stones and kernels. From sixteen ounces of cherry-stone water, Geisler obtained 1·9 grains of cyanide of silver; and from cherry-kernel water, the kernels being to the water as 1:8 by weight, the cyanide of silver obtained from sixteen ounces, was equal to 2·36 grains. Twelve ounces of the *kernels* yielded 7· grains of hydrocyanic acid: but the proportion of prussic acid yielded by the same weight of cherry *stones*, according to Geiseler, was not more than 2·3 grains. (Pharm. Jour. Feb. 1846, 372). These kernels bruised are much employed for the purpose of giving a flavour to alcoholic liquids. It is not often that they are used in such quantity as to occasion accidents; but the following case, the details of which are somewhat imperfectly given, will shew that the eating of a large quantity of the kernels may operate fatally.

"A girl aged five years, ate a considerable quantity of the kernels of sweet cherries (*Prunus avium*). Her brother (a few years older than herself) also ate some. After the lapse of a few hours symptoms of poisoning appeared. When a medical man was called the next day, he found the girl in such a stupor that she could not be roused. The eyes were closed, pupils considerably dilated, the skin moist and hot, respiration exceedingly hurried, pulse small and quick, &c., the child very restless. An effervescing mixture was ordered internally, and cold fomentations to the head externally; after a few hours vomiting of a greenish mass ensued, and was followed by retching, which continued until death; the body was spasmodically drawn backwards. The illness lasted forty hours. On a *post-mortem* examination the stomach was found intensely reddened; the intestines were strictured and invaginated, but there was not any inflammation. The liver, spleen, and large vessels contained black tar-like blood. The boy, who had eaten fewer cherry-kernels, became likewise ill, but recovered in the course of a month. An eruption, analogous to urticaria, came out on the fore-arms of both children; they were both perfectly well (according to the statement of the mother) before eating the cherry-kernels, and no other cause for the attack could be assigned. The kernel of the *Prunus avium* (*Cerasus nigra*) contains amygdaline, and produces prussic acid as well as essential oil in the stomach."

In (*Cerasus* or *Cerasophora*) the true cherry, the inflorescence is in tufts or *sertula*, not in racemes.

In (*Laurocerasus*) the cherry-laurel the flowers and fruit are in racemes, and the leaves are evergreen. While in *Padus*, a group sometimes separated from *Lauro-cerasus*, and sometimes combined with it, although the inflorescence is racemose, the leaves are deciduous. These subgeneric distinctions are at least as important, if not more so, in an economical as in a systematic point of view, for prussic acid, which abounds in the *Lauro-cerasi* even in their leaves, is almost absent from the true cherries, and in the intermediate *Padi*, it occurs only in very moderate proportions.

QUALITIES.—Three sorts of this fruit are ranked among the articles of the *materia medica*; they are all met with in our gardens, but the shops are supplied with them moderately dried from abroad. These are the Brignole plum, or Prunelle, brought from Brignole in Provence, of a reddish yellow colour and a very grateful sweet subacid taste; the common or French prunes, called by our gardeners the little black damask plum and damsons, the larger damask violet plum of Tours, which is seldom kept in the shops, its place having generally been supplied by the common prunes. All these fruits possess the same general qualities with the other summer fruits. When perfectly ripe they are pleasant to the palate, and moderately nutritive; but when eaten too freely they are apt to occasion flatulence, griping, and diarrhoea. They are nearly inodorous, and contain chiefly mucus, saccharine matter, and malic acid.

MEDICAL PROPERTIES AND USES.—The dried fruit, or prunes, are gently laxative, and enter as an ingredient into the *Confectio sennæ* of our pharmacopœias. They are advantageously employed as an article of diet in costive habits, and in febrile and other diseases.

The fruit of the sloe (*Prunus spinosa*) is a powerful astringent, and the inspissated juice is a substitute for the Indian catechu. This juice is also largely used in factitious or adulterated port-wine, and the leaves are reckoned among the adulterations of tea in England.

A writer who signs himself "Crito," in the *Truth Teller*, No. 15, introduces us to an honest enthusiast, discoursing to his hearers on the flowers of the season and other offerings from Flora to the rolling year.

"Picture to your imagination a poor 'dirty' mendicant of the order of St. Francis, who had long prayed and fasted in his sanctuary and long laboured in his garden, issuing out on the morning of his first pilgrimage without money and without provisions, clad in his mantle and hood 'like a sad votarist in palmer's weeds;' and thus and in these words taking leave of the poor flock who lived round his gothic habitation:—'Fellow men I owe you nothing, and I give you all; you neither paid me tithe nor rent, yet I have bestowed on you food and clothing in poverty, medicine in sickness, and spiritual counsel in adversity. That I might do all these things I have devoted my life in the seclusion of those venerable walls. There I have consulted the sacred books of our church for your spiritual instruction and the good of your souls; to clothe you I have sold the embroidered garment, and have put on the habit of mendicity. In the intercalary moments of my canonical hours of prayer, I have collected together the treasures of Flora, and gathered from her plants the useful arts of physic, by which you have been benefited. Ever mindful of the useful object of the labour to which I had condemned myself, I have brought together into the garden of this priory, the lily of the valley and the gentian of the mountain, the nymphæa of the lake, and the cliver of the arid bank; in short I have collected the throatwort, the liverwort, and every other vegetable specific which the kind hand of nature has spread over the globe, and which I have designated by their qualities, and have converted to your use and benefit. Mindful also of the pious festivals which our church prescribes, I have sought to make these charming objects of floral nature, the timepieces of my religious calendar, and the mementos of the hastening period of my mortality. Thus I can light the taper of our Virgin Mother on the blowing of the white snowdrop, which opens its floweret at the time of Candlemas; the lady's smock and the daffodil remind me of the Annunciation; the blue harebell of the festival of St. George; the ranunculus, of the Invention of the Cross; the scarlet lychnis, of St. John the Baptist's day; the white lily, of the Visitation of our Lady; and the virgin's bower, of her Assumption; and Michaelmas, Martinmas, Holy Rood, and Christmas, have all their appropriate monitors. I learn the time of day from the shutting of the blossoms of the star of Jerusalem and the dandelion, and the hour of the night by the stars."



Euphorbia officinarum L.

EUPHORBIA OFFICINARUM.—OFFICINAL EUPHORBIVM OR SPURGE.

CLASS II. DODECANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, EUPHORBIA.—THE EUPHORBIA TRIBE.

Fig. (a) the corolla magnified. (b) The germen and styles, magnified. (c) An anther magnified. (d) The calyx, magnified.

THIS species of *Euphorbia* is a perennial, shrubby, and very succulent plant. It is a native of Africa, where it grows in great abundance. This plant derived its name from Euphorbius, physician to Juba, King of Lybia, who named it in honour of his physician. The genus *Euphorbia* comprises a very numerous family of singular plants, upwards of one hundred and twenty species of which are cultivated in our botanic gardens. The *Euphorbia Officinarum* was first cultivated in this country about the year 1597.

The stem of this plant rises to about five feet in height, is simple or branched towards the top, erect, round and angled or furrowed, with eight or more longitudinal fissures; the branches are destitute of leaves, and go off first horizontally and then ascend; are more distinctly angled than the stem, scolloped and furnished with prickles, which are everywhere double; the flowers are sessile, on the extremities of the branches at each pair of spines, of a crimson or yellow colour; the petals are four, turbinate, gibbous, thick, truncated, and attached by claws to the margin of the calyx; the filaments are about twelve, capillary, longer than the petals, and support globular two-lobed anthers: the germen is roundish, three-lobed, with a simple short style, crowned with three spreading, obtuse stigmas; the capsule is tricocous, elastic, and contains three roundish seeds.

Upwards of 200 species of *Euphorbia* are enumerated in Sprengel's catalogue, but, according to Merat and Lens, the genus includes about 400. Many of them are grotesque and curious looking plants, well worthy cultivation, at least for their strange appearance, if not for their beauty. They are all lactescent, and their milky sap, which contains more or less caoutchouc, is so acrid that it will redden or even blister the skin, and is used to destroy callosities, whence many species are called 'wart-worts.' Dioscorides states that in old practice this juice was dropped into the eye to remove opacity of the cornea, and also into wounds to destroy the venom of the scorpion. It is purgative and emetic, if taken internally in small doses, and the concrete juices of several species form the gum resin of medicine called '*Euphorbium*.'

The seeds yield a purgative oil, and all parts of the plants possess acrid and active properties, similar to those of the sap, but they are perhaps most powerfully concentrated in the roots of the succulent and perennial species; and especially in those which are the natives of warm countries. In Africa and Asia the leafless euphorbiæ are often planted as hedges, and most protective fences they form, their sturdy stems, prickly branches, and acrid juices, almost defying the passage of man or beast. During the wars in Hindostan such hedges were more feared by our troops than *chevaux de frise*, for soldiers not only got their flesh torn, but the wounds were filled with the burning sap; and when cavalry regiment were forced through them the horses became ungovernable.

A species of *Cacalia* (*C. anti-euphorbium*), enjoys the reputation of being able to remove the untoward effects which follow the internal administration of euphorbium, or the irritation consequent on its external use.

Euphorbium is principally obtained from three species, viz. *E. officinarum*, *E. Canariensis*, *E. antiquorum*, the latter of which alone was supposed by the ancients to yield their drug. This gum resin is useful as a rubefacient to assist the action of cantharides.

The sap of *E. capitata* is esteemed in Brazil as an application to serpent wounds, and that of our indigenous *E. Helioscopia*, and other species, is also used by the peasants as a caustic for the bites of vipers. In India the sap of *E. capitata* is applied to eruptions.

E. corollata and *Cyparissias* are both emetic and purgative; the former is used in North America to evacuate the collected fluids in dropsies; and the powder of its root is said by Drs. Kean and Coxe to be a very serviceable medicine. In some of the French provinces it is called "*rhubarbe des pauvres*," for which drug, however, it is a miserable substitute, for La Motte mentions a case in which a woman was killed by its administration. When eaten in any quantity, it is poisonous to sheep and other animals, as is also *E. genistoides*, the feeding upon which is often followed by a fatal dysury.

E. heptagona, an Ethiopic species, is a violent poison, and its juice is said to be used by the Africans to anoint their arrows and spears, so as to render the wounds inflicted mortal.

E. ophthalmica has received its name from the employment of its juice, perhaps on the same principle, although unconsciously, by the natives in Rio Janeiro, as the lunar caustic unguent has been so successfully used here in the treatment of ophthalmia.

Some of the less acrid *Euphorbiæ*, as *Peplus* and *Lathyrus*, might, if other cathartics failed, be safely

used. The former is said to act without producing nausea, and the latter is frequently taken on the continent, the dose being from 12-15 of its seeds. The cathartic properties of the seeds reside in an oil which is abundant in their fleshy albumen, and which, when expressed, exhibits the same qualities as the entire seeds, but in a more concentrated form, the dose being from 4-8 drops: so that it might become a cheap substitute for the oil of the *Croton Tiglium*. The seeds yield from 44-52 per cent. of this purgative oil, and, according to Merat and Lens, it may be prepared at so moderate an expense that enough might be bought for five sous to cleanse the *primæ viæ* of about 100 patients. Notwithstanding their acridity the seeds of *E. Lathyres* are not unfrequently pickled instead of capers, and eaten as a sauce with meat, whence it has been called the caper-spurge. Such diet can scarcely be considered safe or wholesome, although the process of pickling will lessen, and perhaps may remove, the more active principles: indeed, the ancients were accustomed to steep the *Euphorbiæ* in vinegar, and to expose them to heat, in order to moderate their acrimony.

E. dulcis and *edulis* are less acrid than most of their allies, and in Cochin-china the leaves of the latter are dressed and eaten with other green vegetables; and we are told that formerly it was the practice to mix the leaves of *Euphorbiæ* with common potherbs, in order to render them cathartic, and thus to take physic and food together.

SENSIBLE AND CHEMICAL PROPERTIES, &c. Euphorbium is brought to us immediately from Barbary, in packages containing from 100 to 150 lbs. weight. It is in small drops of an irregular form, of a pale yellow colour externally, but somewhat white within, and breaks easily between the fingers. It is inodorous; when first chewed it has little taste, but soon gives a very acrid, burning sensation to the mouth and fauces, which is very permanent. It is soluble in ether, alcohol, oil of turpentine, oil of almonds, and partially so in acids and alkalies. When the ethereal tincture is evaporated on water, it leaves on the side of the glass a pellicle of transparent resin, resembling an official plaister. When triturated with water it renders it milky, but only one part in seven of the Euphorbia is dissolved. Alcohol takes up about one part in four, and forms a clear straw-coloured solution, which is rendered milky by the addition of water. It burns with an agreeable smell and a bright flame; its specific gravity is 1.124. Braconnot makes 100 parts of Euphorbium to contain 37.0 of resin, 19.0 wax 20.5 malate of lime, which was mistaken for gum, 2.0 malate of potass, 5.0 water, 13.5 woody matter, and 3.0 loss.

MEDICAL PROPERTIES AND USES. Euphorbium is powerfully cathartic and emetic, hence it was formerly given as a hydragogue in dropsies, &c. but its effects are so violent, even when exhibited in small doses, that it is now very seldom given internally. It is also a powerful errhine, but requires dilution, for if used alone its action is so violent as to produce inflammation and hæmorrhage. When properly diluted with starch or some other inert powder, and used with discretion, it has been found an excellent errhine in lethargy, deafness, paralysis, amaurosis, palsy, &c.

Poisonous Effects. Euphorbium is ranked by toxicologists, among the acrid poisons. Orfila made many experiments on dogs to ascertain the effects of Euphorbium on the animal economy, and from them has drawn the following conclusion: First, That Euphorbium exerts a local action extremely violent, capable, of producing acute inflammation. Secondly, That its fatal effects depend rather on sympathetic irritation of the nervous system than on its absorption. Thirdly, That it acts on the human species as on dogs.

In the Philosophical Transactions for 1760, a case is recorded of a Mrs. Willis, who took by mistake two ounces of the tincture of Euphorbium, prepared with two drachms of camphor and two of Euphorbium to two ounces of rectified spirit. Immediately after she experienced a violent suffocation, attended with a burning pain in the mouth and stomach; large draughts of warm water were immediately exhibited, which produced vomiting; the burning pain at the stomach continuing, she was ordered to drink oil and water alternately; the sickness continuing, an ounce of ipecacuanha wine was administered, after which an opiate and mild diluents soon produced tranquility. The violent effects produced by the tincture of Euphorbium in this case must be partly attributed to the camphor.

Professor Taylor tells us that in one instance a teaspoonful swallowed by mistake produced burning heat in the throat and stomach, with vomiting. The individual died in three days. (Christison, 588.) It is used in veterinary medicine, and may thus occasion poisoning by mistake. The seeds and root of several varieties are equally poisonous. The following is a case of poisoning by the Euphorbium Peplus (Petty Spurge). A boy æt. 6, ate the plant by mistake. He was seized with vomiting, spasms, small pulse, inability to swallow, insensibility and cold extremities. He sank under these symptoms, and on inspection, the tonsils, fauces, pharynx, and larynx were found much inflamed, and containing a green coloured mucus. The mucous membrane of the stomach and intestines was very red, but the large intestines were healthy, with the exception of the muscular coat, which was vascular. The bladder was contracted: the lungs healthy as well as the substance of the brain. The veins of the dura mater were distended. (Beck's Med. Jur. 832; and Med. Chir. Rev. vii. 275). Orfila quotes what appears to be a somewhat doubtful case, in which a woman died in half an hour from about twenty-five grains of the root. (Toxicol. ii. 104.) There is no doubt that euphorbium is a very acrid substance and that in all its forms, it possesses a strong local irritant action.

At Aurillac, in France, sixteen persons were seized with violent sickness after having drunk the milk of a goat. The animal became indisposed in two days, and died on the third day, with symptoms of irritation of the alimentary canal. This poisonous action of milk has been often referred to the animal having eaten the *Euphorbia esula*, but nothing certain is known on the subject. It is singular that the animal poison of rabies should be sometimes transmissible by the milk.



Grevillea punicea L.

GREVILLEA PUNICEA.—SCARLET GREVILLEA.

CLASS IV. TETRANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, PROTEACEÆ.

THIS beautiful species, says Dr. Lindley, is very nearly related to *G. sericea*, with which it was confounded by Sir James Smith; but from which it differs in the greater length of the pistillum, and the much longer beard which clothes the inside of each division of the calyx. We scarcely know a more desirable greenhouse plant.

Mr Brown characterises it by the want of a mucro to the leaves; a circumstance in which it would, therefore, differ from *G. sericea*; but we do not find any variation in this particular between the two plants.

A branching *shrub*, with angular, hairy twigs. *Leaves* lanceolate, mucronate, recurved at the edges, silky beneath. *Flowers* downy outside; the calyx clothed internally with a long white beard. *Pistillum* smooth.

The entomologist boasts (says the author of the Wonders of the Vegetable Kingdom) that there is nothing analogous in the vegetable world to the metamorphosis of the butterfly; and, in poetic fervour, he resembles it to the emerging of the immortal spirit from its tabernacle of earthly clay. But let truth and nature speak for themselves. Turn your eye,——, to that Oriental poppy. It is just beginning to expand. The corolla is carefully folded up, and enclosed in a rough unvaried covering of green. Certainly in this state it is not particularly attractive. Wait, however, for a moment; the sun, even at this early hour, has absorbed the dews of night, and dried and warmed the mask of rough green which envelopes the head. Suddenly it opens, and falls off. As the butterfly burst from its dull dry case in all the pride of perfection, so does this brilliant flower instantly display its rich brown stamens, and unfold its brilliant orange wings; for such Linnæus elegantly terms the petals. In both the insect and flower, nature seems to have deviated from her usual slow gradations, as if impatient for, and glorying in, their charms.

— You have pointed out an elegant and interesting phenomenon, which I have not observed before; and whilst I have been listening to you, I have also thought how much there is in this flower corresponding with the nature of man. The root, like the infancy of the human plant, contains the whole of the future being; but who can look at either, and form an estimate of their physical or moral beauty? The gradual unfolding of the leaves resembles the progressive stages of education; till at length the human plant stands forth in all the strength of his faculties, an intellectual and moral agent. Like the brilliant poppy, he is not the flower of a day. The seeds of piety to God, and benevolence to man, are ripened in his bosom, destined to germinate and blossom in a richer soil, the garden of immortality.

Let us change the idea, and consider how the varieties in the characters of our friends and acquaintance assimilate to the different productions of the flower-garden. A rose may be considered as the vegetable prototype of some distinguished female, whose worth is far superior to that of gold or rubies. Encompassed by the trials of mortality, she heeds them not, for her hopes are fixed on heaven. She lives only to diffuse happiness, to perfect good works, to leave a rich memorial of her virtues. What a striking contrast to the Venus-catchfly? Dressed in a gay drapery, and flaunting her head to the luxuriant breeze, attracting the summer-flies that skim around her, and blooming only for the vain and gay. Apt emblem of those careless daughters who live at ease apparently forgetful that they are reasonable beings, accountable for their conduct while in this probationary state, and formed for an endless progression in perfection and felicity. What a lovely picture of maternal tenderness, of a mother surrounded with her children, is afforded by the hen and chicken daisy. In the night-blowing stock, which emits its perfume only in the gloom of evening or the darkness of the night, do we not recognize that generous attachment which sheds around us the pure fragrance of affection, when the sun of prosperity is succeeded by the night of adversity? How beautiful is that Austrian brier; its richly variegated petals are embosomed in a cluster of verdant leaves. Reach not your hand to pluck it to your bosom, admire it only at a distance, regard not its inviting appearance, for it will wound you with invisible thorns; it will smile upon you, and pierce you to the quick. Look at that gumcistus: its blossoms are spread forth with an air of openness, and apparently, it stands firmly on its stem, promising a friendship of constancy and frankness. Alas! it is the emblem of fickleness; the first cold breeze dashes it to the ground: again and again, it opens its deceptive blossoms, to any who are ready to be deluded. How admirably does the mignonette designate a benevolent, modest, and unassuming individual, discoverable only by good works. Its odours fill the atmosphere around. The *argemone*, or prickly-poppy, is but too descriptive of many characters, of no use and little beauty. Behold yourself, —, in the fragrant woodbine. Its scent may be compared to a fountain of affection, always flowing, always full. It is not the

flower of a day, nor does the passing of a cloud occasion any difference, but its sweets continue, and even emit a richer perfume when the heavy shower is descending. One more simile and I have done. It will apply to our two mothers. Do they not resemble the lavender. It is beautiful in youth, fragrant in old age, sweet and delightful, when all its early bloom has faded.

It is delightful thus to connect the characters of those we love with shrubs and flowers. they bring to mind that happy land, where the names of the great and virtuous are fabled to be engraven on the blossoms of the trees.

It has been customary from the earliest times to dedicate certain stars and flowers to the honour of distinguished individuals. The latter were also frequently affixed as symbols to their portraits; thus, to instance a familiar example, the lily is introduced in the oldest paintings of the Madonna, and in pictures of the annunciation it is placed in the hand of the archangel, thereby denoting the advent of the Messiah. The original consecration of this flower is of high antiquity. In the Song of Solomon it is mentioned with the rose as an emblem of the church. "I am the rose of Sharon, and the lily of the valley." This alone is sufficient to explain its appearance upon religious painting. There is however, another circumstance, which renders its connexion with pictures of a sacred nature peculiarly appropriate. The word Nazareth, in Hebrew, signifies a flower, and St. Jerome, who mentions the circumstance, considers it to be the cause of the frequent allusion made to a rose and lily in the prophecies respecting our Lord. Hence illuminated missals are often beautifully decorated with these distinguished flowers. The lily is also used as an heraldic emblem, a custom evidently derived from the Crusades. In the crown of Edward the Confessor it formed a conspicuous ornament, as appears from a coin engraved both in Speed and Camden.

The scientific botanists of antient and modern times have preserved the memory of benefactors to their science, by associating them with flowers of various descriptions. Thus the brilliant *gentiana*, an Alpine plant, which opens its bright blue petals in the summer months, and is confessedly one of the richest ornaments of the garden; commemorates a King of Illyria, as the pale *euphobia*, the physician of Juba, a moorish prince.

Linnæus particularly delighted in drawing fanciful analogies between botanists and their appropriate plants. Thus the delicate *Bauhinia* with its two-lobed or twin leaf, designates two distinguished brothers, celebrated for their science and affection. *Magnolia*, with its noble leaves and flowers, and *Dillenia*, with its beautiful blossom and fruit, commemorates the most meritorious and industrious among botanists. *Scheuchzeria*, a grassy Alpine production, perpetuates the name of the two Scheuchzers, one of whom excelled in the knowledge of mountain plants, the other in that of grasses.

Linnæus himself is represented by the *Linnaea borealis*, an abject Lapland plant, flowering at an early period, but long unknown. This celebrated botanist who never deigned to notice the calumnies of his enemies, thought himself sufficiently revenged by giving their names to obnoxious plants, the qualities of which appeared consonant with their characters. Thus the henbane would have presented to his lively imagination the mental portraiture of a treacherous man, concealing, under the semblance of virtue and humility, a cruel and perfidious heart. On the contrary, plants of opposite qualities celebrated the virtues of his friends. The *Murraea exotica* was named after one of his favorite pupils, a foreigner of distinguished talents. In pursuance of the same idea, the *Browallia demissa* and *elata* preserve the memory of a botanist of humble origin, who afterwards became a bishop, in whose work upon water, Sir James Smith discovered the following quotation from Seneca, in the hand-writing of Linnæus: "Many might obtain wisdom, if they did not suppose that they had already reached it."

Dicksonia, a beautiful and curious fern, is well devoted to the late great cryptogamist. *Knappia*, a small and singular grass, to an author celebrated for his minute and curious drawings of that tribe. *Buffonia tenuifolia* is well known to be a satire on the slender botanical pretensions of the great French zoologist.

The elegant *Monsonia speciosa* was named in honour of Lady Ann Monson. The *Buddlea globosa*, so much admired for its beautiful clustered yellow blossoms, and strong scent of wax, commemorates Mr. Adam Buddle, the ingenious friend of Petiver, whose collection of dried plants is preserved in the British Museum, and still resorted to in doubtful cases.

The brilliant *Tradescantia Virginica* preserves the name of Tradescant, who first transplanted it from Virginia to the gardens of this country.

A magnificent and gigantic flower has been discovered in Sumatra, called the *Rafflesia Arnoldi*, in honour of Sir Stamford Raffles, and his lamented companion Dr. Arnold. The Corolla was nine feet in circumference, it measured one yard across, and the nectary alone was calculated to hold twelve pints. This strange corolla emerged from the earth with only a floral leaf, and before expanding bore some resemblance to a cabbage.

The *Calceolaria Fothergilla* was brought by Dr. John Fothergill, with several other rare plants, from the Falkland Islands, where it is a native. Hence the trivial name of Fothergilla, in honour of that truly great and excellent physician, who was an ornament to his profession, age, and country, and indeed to human nature.



Mercurialis perennis.

MERCURIALIS PERENNIS.—PERENNIAL, OR DOG'S MERCURY.

CLASS XXII. DICECIA.—ORDER VIII. ENNEANDRIA.

NATURAL ORDER, EUPHORBIACEÆ.—THE EUPHORBIIUM TRIBE.

Fig. (a) represents the calyx; (b) a single fertile flower; (c) the capsule and seeds; (d) the stamens, with their anthers, and the calyx.

Two species of this genus are indigenous to Britain, viz. the perennial or Dog's Mercury, (*Mercurialis perennis*), and the annual or French Mercury, (*Mercurialis annua*.) The former has obtained a place in our work on account of its poisonous qualities, and the latter was at one time in considerable repute as an article of the materia medica. Dog's Mercury is a common plant, growing everywhere in shady groves and hedges; flowering in April and May.

The root is creeping, white, and very fibrous. The stem is erect, perfectly simple, round, leafy, naked below, thickest at the joints, slightly winged alternately, and rises to the height of a foot or more. The leaves stand in opposite pairs, on short footstalks; they are ovate, acute, serrated, two or three inches long, with two small pointed stipules, at the base of the footstalks. The flowers proceed in slender, erect spikes, from the axillæ of the leaves, near the top of the stem; in the barren, or male plant, longer than the leaves; in the female, concealed among them. The flowers in the fertile plant are few; in the barren ones numerous, sessile, growing in a short, interrupted spike, and half surrounding the stem. The barren flowers have from nine to twelve capillary, erect stamens, bearing globular, two-lobed anthers: there is no corolla, and the calyx in both, is divided into three deep, ovate, concave, spreading segments. The germen is superior, roundish, compressed with a furrow at each side, supporting two spreading, inflexed, tapering, rough styles, having acute stigmas. Two awl-shaped bodies, found occasionally at the opposite side of the germen, and rising above the styles, are supposed to be the nectaries. The seed-vessel is two-lobed, globular; capsule two-celled, and containing a single roundish seed in each cell, of a brownish purple colour.

QUALITIES.—The whole herb has a very nauseous taste, and a heavy, disagreeable odour. When dried, the leaves often assume a bluish tint, indicating its affinity, as a distinguished writer in Rees' Cyclopaedia has well remarked, to *Croton tinctorium*. Notwithstanding its strong unpleasant flavour, Dog's Mercury has been eaten boiled as a pot-herb, when mixed with mucilaginous and oily substances; yet instances are not wanting of the fatal consequences of its use occasionally in this country. The following case, where it was mistaken for common English mercury, (*Chenopodium Bonus Henricus*), and had nearly proved fatal to a whole family, is recorded by Sir Hans Sloane, in the 3rd edition of Ray's Synopsis:—

"W. Matthews, his wife, and three children, have been lately very ill, and like to die; the occasion and manner of their sickness was very odd, and therefore I shall give you a particular account of both. About three weeks ago, the woman went into the fields and gathered some herbs, and, having first boiled them, fried them with bacon for her own and her family's supper. After they had been about two hours in bed, one of the children (which is dumb, and about seven years old) fell very sick, and so did the other two presently after, which obliged the man and his wife to rise and take the children to the fire, where they vomited &c. and within half an hour fell fast asleep. They took the children to bed as they were asleep, and they themselves went to bed too, and fell faster asleep than they had ever done before. The man awoke next morning about three hours after his usual time, went to his labour at Mr. Newport's, and so by the strength of his constitution carried it off; but he says he thought his chin had been all day in a fire, and was forced to keep his hat full of water by him all day long, and frequently dipt his chin in it as he was at work. The woman awoke awhile after her husband, and, being forced to it, got up to look after her little family concerns; but she was very sick, and has continued so till within these few days, since she is very well

recovered. One of their children slept from that night, (which was Thursday three weeks,) till Monday evening following, and then (having just only opened her eyes, and made two sprunts,* without speaking one word,) died immediately while she was asleep; endeavours were used to awaken her, but in vain. The other two children slept about twenty-four hours, and upon their wakening, fell a vomiting again, which I think saved their lives. By Mr. Newport's and my directions, they sent some of the same herb to the doctors and apothecaries in Salop, who generally say it is Dog's Mercury; but some say, it is a sort of night-shade: whatever it be, it is certainly poisonous, and it is observed that cattle never browse upon it: but I guess it to be a mistake. . . . I am no herbalist, but this I observed of the herb; It is branched and seeded something like spinage, or mercury, but leaved with lakeweed."—(*Philos. Trans.*, No. 203 for September, 1693.) Sir H. Sloane was afterwards furnished with some specimens of the plant, and found it to be Dog's Mercury.

MERCURIALIS ANNUA.

Annual, or as it is sometimes called, French Mercury, with branched stems, and smooth, glossy leaves, grows wild in waste or uncultivated ground, chiefly in the more temperate parts of Europe. It occurs frequently near London, in Battersea Fields; It may be at once distinguished from *M. perennis* by its annual root, branched stem, and smooth leaves, and by its flowering in autumn. This plant is mucilaginous, and was formerly much employed in enemata and emollient fomentations. It is sometimes eaten as spinage, and when used in considerable quantities, it operates as a cathartic. A syrup made from the leaves, given in the dose of two ounces, is said to prove a mild and useful laxative. According to Lamarck, the seeds are very fattening to those small birds, which the Italians call *Beccaficos*, or *Fig-eaters*, and which are so much relished by the epicures of the south of Europe.

The bark of the Poison Ash, which grows naturally in Virginia, Pennsylvania, Carolina, and Japan, rising twenty feet and upwards, is brown, inclining to gray. The footstalks become of a bright purple towards the latter part of Summer, and in Autumn all the leaves are of a beautiful purple before they fall off. Professor Kalm says, "an incision being made into the tree, a whitish yellow juice, which has a nauseous smell, comes out between the bark and the wood. This tree is not known for its good qualities, but greatly so for the effect of its poison; which, though it is noxious to some people, yet does not in the least affect others; and, therefore, one person can handle the tree as he pleases, cut it, peel off its bark, rub it, or the wood, upon his hands, smell it, spread the juice upon his skin, and make more experiments, with no inconvenience to himself. Another person, on the contrary, dares not meddle with the tree, while its wood is fresh, nor even expose himself to the smoke of a fire which is made with its wood, without soon feeling its bad effects; for the face, the hands, and frequently the whole body, swell excessively, and are affected with very acute pain. Sometimes bladders or blisters arise in great plenty, and make the sick person look as if he was infected with the leprosy. In some people, the external thin skin peels off in a few days, as is the case when a person has scalded or burnt any part of his body. Nay, the nature of some persons will not even allow them to approach the place where the tree grows, or to expose themselves to the wind when it carries the effluvia, or exhalation, of this tree with it, without letting them feel the inconvenience of the swelling just described. Their eyes are sometimes shut up for one, or two, or more days together, by the swelling. I know (says the Professor) two brothers, one of whom could not come near it without swelling. I have known old people who were more afraid of this tree than of a viper, and I was acquainted with a person, who, merely by the noxious exhalations of it, was swelled to such a degree, that he was as stiff as a log of wood, and could only be turned about in sheets." In some places this tree is rooted out, on purpose that its poison may not affect the workmen. The natives are said to distinguish it in the dark, by its extreme coldness to the touch; and the thickened juice of this tree is said to be the fine varnish of Japan, with which they blacken their different utensils.

* To Sprunt, v. n. (*sprengen*, Teut.) to spring up; to germinate, to spring forward.



Anichusa paniculata.

ANCHUSA PANICULATA.—PANICLED BUGLOSS.

CLASS V. PETRANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BORAGINÆ.—THE BORAGE TRIBE.

Root biennial or perennial. Stem round, hirsute; branches alternate; leaves lanceolate, entire, rough, very hairy; flower-buds purple on short pedicels, in expanding changes to bright blue; peduncles hairy; calyx five-parted, hairy; stamens on short filaments inserted on the bearded throat of the corolla.

This plant although introduced as far back as 1777, is by no means common in our gardens: this cannot be on account of a deficiency in point of attraction. The colour of the bloom is of a splendid blue, somewhat approaching to purple. In the herbaceous border it is evidently a showy plant; it shoots up with many branches to the height of about five feet, producing fine peduncles of flowers during the months of May, June, and July. It is considered in many works as a biennial, but it is known to last four or five years: when once established it is not very readily eradicated, from its dropping its seeds, as well as from the roots being so tenacious of life that small pieces being permitted to remain in the ground will spring up and produce plants.

It is a native of Madeira, and thrives best in sandy ground, but will grow very well in light garden mould. A large specimen of this plant may be seen in the herbaceous ground at Chelsea Botanic Garden, where it thrived for many years.

Several species of *Anchusa* have roots which abound in a red colouring matter, useful as a dye: this, which is considered a peculiar proximate principle, has been called by John *Pseudo-alkaunin*. *A. tinctoria* is the common *Alkanet* or *Orcannette*, much in request by druggists to color oils, wax, &c. Lipsalves, many plasters, and the composition often sold as port-wine, owe their tints to this dye-stuff, which is also used to stain corks, so as to give false circumstantial evidence of the *wine* having been some time in bottle. *A. Virginiana* and *Echium rubrum* have roots almost equally rich in colouring matter with the true *Alkanet*, and are used as substitutes for it.

It has been asserted that the entomologist has a decided advantage over the botanist in the arrangement of his cabinet, since he can preserve unfading the brilliancy of his various subjects. But Nature herself arranges the cabinet of the botanist, spares him the trouble of collecting, and furnishes it from year to year with living specimens of skill and beauty. She covers the rugged surface of the globe, broken into rocks and valleys with flowers, herbs, and forest trees; some of them minute and beautiful, others of a noble and commanding aspect; extending over all a canopy of light, which apparently embraces and defends the earth, on which it seems to rest. Sometimes light fleecy clouds fly rapidly across it, or dark imposing masses shade the face of heaven. Again they pass away, the clear blue sky appears, and all is bright and shining. Evanescent as the joys and sorrows of this transitory being, they are scarcely seen before they disappear. The mental eye receives instruction through the medium of objects peculiarly pleasing to the senses. It learns to look beyond this world, to fix its sole attention on those tranquil regions which never experience any change, however the view of them may be occasionally obscured by the passing clouds of this probationary state.

Linnæus has well observed, that every thing in nature celebrates its Maker's goodness, and is calculated to convey important lessons to the heart. The contemplation of the wonders of creation is, indeed, a noble and refined luxury, a rational delight, and one that charms us with continual variety.

It may be justly questioned whether works of art, however rare and splendid, can yield for any length of time, the pleasure which is continually excited by the renovation of flowers in the spring, when they come up with the smiling faces of old friends, and seem to look cheerfully on all around. How many feel-

ings and ideas are associated with them ! Pure and innocent as themselves, they are the first objects of infantine regard ; they offer to the youthful mind a never-failing source of rational enjoyment ; they are cheering in old age, and yield a calm and elegant satisfaction, which pleases without agitation, and has a beneficial effect upon the health and mind. The old man, who walks abroad in a fine spring morning, when the air is fresh and the flowers are opening to the sun, feels his spirits renovated, and his heart expands with joy. The productions of the woods and hedges remind him of those which he has gathered with companions who have perhaps long since departed. Something of a melancholy feeling may be connected with the recollection of them ; but it is a melancholy which bids fair to render the heart better. He recalls to mind the seasons in which he has seen them bloom and fade around him, and they appear as so many emblems of his own mortality. He may sigh to think that all flesh is but as grass, and the goodness thereof as a flower of the field ; yet they still remind him that as the loveliness of nature is restored by the breath of the vernal season, so shall the dead arise from the winter of the grave to light and immortality. He remembers that there is a country which the sacred writers compare to a garden, watered by the river of life, and producing a tree whose fruit shall never fail ; in which the unfading flowers of kindness, benevolence, and piety, transplanted from the bleak and churlish atmosphere of this lower world ; where even now they bring forth abundant fruits of refreshment and consolation shall blossom for ever with their beauty undiminished and their lustre unimpaired.

There is also a joyous feeling which sheds itself abroad, invests all nature with a power and a spell, fills the heart with gladness, and even prompts the tear which it is luxury to shed. From the cottage to the throne this influence is powerfully felt. Queen Elizabeth, surrounded with the restless anxieties of interest and ambition, and feeling strong within her that love of rural sights and rural sounds, which Cowper has happily denominated, "an inborn inextinguishable thirst," often wished that she was a milk-maid in the flowery month of May, because "untroubled with cares and fears such persons sing sweetly all the day, and sleep securely all the night." "How pleasurable is the wholesome morninge walke," said the prioress, Lady Juliana Barnes, who, more than three centuries since, celebrated the pleasures of a country life, "to scente the sweete savour of meade flowers, and hear the melodious harmonie of fowles." It is, indeed, delightful to walk abroad into the gay creation, and derive agreeable ideas at every step ; when the hawthorns and well-attired woodbines, bending over the dewy banks, appear to offer from their cups the richest fragrance to the passing traveller. All nature is then beauty to the eye and music to the ear, and, we may justly add, that it is fragrance to the smell. Yet all this beauty, melody, and fragrance are but so many voices in the mighty anthem which celebrate the greatness and benevolence of God. "All thy works praise thee," said the Psalmist, when in a strain of eloquence, perhaps, never equalled by mortal man, he calls upon the hosts of heaven, the stars of light, the mighty waters, and stormy winds, mountains, and all fruitful trees, cattle, and flying fowls, to join with him in praises to the Great Jehovah, whose glory is above the heavens and the earth. The mind, which has never been imbued with the spirit of devotion, cannot fully enter into the beauty and magnificence of the material system ; but, to those who recognise a present Deity in all his works, what exquisite enjoyment and heart-felt pleasure is derivable from the various objects by which they are surrounded ! The spacious vault of heaven is to them the temple of the living God, in which, from the earth's great altar, the incense of thanksgiving continually ascends ; "things animate and inanimate are his worshippers," and the elements are the ministers of his will.

It has been elegantly observed, that the imagination of the poet can give animation to whatever he describes. "All the beauty and sublimity of the moral and intellectual world are at his disposal, and by bestowing on the objects of scenery the characters and affections of mind, he can produce at once an expression which every capacity may understand and every heart may feel." If the facilities for enjoyment possessed by the poet are equal to his descriptive powers, are they actually superior to such as are afforded to the botanist by his favourite pursuit ? It is impossible for those who are unable to appreciate the pure and simple pleasures which the lavish works of nature continually afford, to imagine the elasticity of thought, the joy and energy that pervades his bosom, when ranging—

"Vales and mountains to explore
What healing virtue swells the tender veins
Of herbs and flowers."



Sambucus nigra L.

SAMBUCUS NIGRA.—COMMON ELDER.

CLASS V. PENTANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, CAPRIFOLIACEÆ.—THE HONEYSUCKLE TRIBE.

Fig. (a) represents a flower somewhat magnified; (b) the calyx, with the germen and stigmas; (c) the fruit.

THE Common Elder is a well-known native tree, growing in hedges and woods, flowering in June, and ripening its berries in September. In Scotland it is called Borette or Bourtree.

The black berried Elder rises with a woody trunk, that is filled with a white medullary substance or pith, and covered externally with a rough, ash-coloured bark, to the height of fifteen or twenty feet. The younger branches are smooth when young, and contain a very large proportion of a light spongy pith. The leaves are very long, of a shining green colour, and composed usually of two pair of leaflets, with an odd one, which are pointed, serrated, smooth, and nearly equal at the base. The flowers are numerous, cream-coloured, and form a large beautiful cyme, with five principal branches, and many small ones at the extremity of the stem and branches. The calyx is superior, permanent, and cut into five deep segments; the corolla is synpetalous, nearly wheel-shaped, with five deep, obtuse, somewhat reflexed segments; the filaments are five, awl-shaped, about the length of the corolla, and bearing roundish, heart-shaped, yellow anthers. The germen is ovate, without a style; but supporting three obtuse stigmas. The berries are spherical, of one cell, containing three, sometimes two seeds, convex on one side, angular on the other. The berries have at first a reddish hue; but become of a purplish black colour when ripe.

There are two principal varieties of the Common Elder, one of them with cut leaves, and hence called parsley-leaved elder; and the white-berried, *Sambucus acinis albis* of J. Banhin. The berries of both are whiter, and more pleasantly flavoured than in the original species.

The generic name, *Sambucus*, occurs in the writings of Pliny and other ancient Authors, evidently adapted from *σαμβυκη*, an instrument of music; in the construction of which, says De Theis, "the wood of this tree, on account of its hardness, was used."

QUALITIES.—The *inner bark* possesses little smell, but has a sweetish, bitter taste, that is succeeded by acrimonious effects. The flowers have an oppressive, sickly odour, which they yield to water; and, by distillation, an essential oil may be obtained from them. The berries, which are inodorous, have a sweet taste, and yield a purple juice, which is a delicate test for alkalies and acids.

MEDICAL PROPERTIES AND USES.—The Common Elder is the *ακτη* of the Greek writers; and we are informed by Dr. Ainslie, that the Arabians and Syrians of the present day are well acquainted with it, and use the inner green bark as aperient, and deobstruent. On account of these properties, it was used also by Boerhaave and Sydenham, in dropsies; and is still a popular remedy with the poor in some parts of our own country. Boerhaave is said to have regarded the Elder with such reverence for its medicinal virtues, that he sometimes took off his hat in passing a tree of this species. Its action, however, both as an emetic and cathartic is occasionally so violent, that inflammation of the intestines has been produced, and death has been the result. The leaves and young buds are also purgative; and from the berries, which are supposed to be diaphoretic, a laxative syrup (olim *Rob Sambuci*) is ordered to be made, both by the Edinburgh and Dublin colleges.* The flowers, which according to Linnaeus,† are poisonous to peacocks, were formerly administered in the form of infusion for erysipelas, rheumatism, small-pox, &c.‡ but whether says Professor

* The berries are said to be poisonous to poultry. *Barthol. Hist. anat. ravior, Cent. iv. p. 284.*

† *Flor. Suec. p. 79.*

‡ *Usitatissimi sunt flores sambuci in praxi medica, atque sub forma infusi frequenter bibuntur in Erysipelate, &c. (Bergius, fol. 245.)*

Burnett, the diaphoretic effects which followed their use, are to be attributed to them or to dilution we cannot determine. Externally, they are still much recommended for their soothing effects; but we are sceptical, and venture to assert, that both fomentations and ointments would be quite as efficacious without them: indeed, what is sold for Elder ointment in the shops is seldom a genuine article.

* Professor Taylor tells us that the berries in a crude state excite nausea and purging; and that Dr. Christison states that the *leaves* and *flowers* of the Common Elder (*SAMBUCUS NIGRA*) act as an irritant poison, having caused in a boy severe inflammation of the bowels, which lasted for eight days. (Op. cit. 607; and Ed. Med. and Sur. Jour. xxxiii. 73). The berries of this tree do not, however, appear to possess in the ripe state, any noxious properties. The following case of poisoning by the expressed juice of the *roots* is reported. (See Med. Gaz. xxxv. 96.) A weakly woman, 54 years of age, who had been sick all day, and thrown up a quantity of greenish matter, which she regarded as bile, was persuaded by her husband to take two tablespoonfuls of the juice of the fresh elder-root which he himself had dug up, shaved down and pressed. The woman soon after complained of pains in the abdomen. She was ordered some infusion of senna, but did not take it, as the bowels began almost immediately to act copiously. Next day the symptoms were those of enteritis, which proved fatal.

ECONOMICAL USES.—The ripe berries are in considerable repute, as affording a domestic wine, which, if properly prepared and drank warm, with spices and sugar, is an excellent cordial. For making this wine, Mrs. Hewlett, in a valuable work, entitled “Cottage Comforts,” which no peasant should be without, has given the following plain and wholesome directions: “If two gallons of wine are to be made, get one gallon of elderberries, and a quart of damsons, or sloes: boil them together in six quarts of water, for half an hour, breaking the fruit with a stick flat at one end; run off the liquor, and squeeze the pulp through a sieve, or straining cloth; boil the liquor up again, with six pounds of coarse sugar, two ounces of ginger, two ounces of bruised allspice, and one ounce of hops; (the spice had better be loosely tied in a bit of muslin;) let this boil above half an hour; then pour it off; when quite cool, stir in a tea cup full of yeast, and cover it up to work. After two days, skim off the yeast, and put the wine into the barrel, and when it ceases to hiss, which will be in about a fortnight, paste a stiff brown paper over the bung-hole. After this, it will be fit for use in about eight weeks, but will keep eight years, if required. The bag of spice may be dropped in at the bung hole, having a string fastened outside, which shall keep it from reaching the bottom of the barrel.”

The wood of the Common Elder is commonly made into skewers for butchers, tops for angling rods, and needles for weaving nets. The pith, being very light, is cut into balls used in electrical experiments.

DOSE—The dose of the bark is from grs. x. to ʒss.; or half an ounce may be boiled in a pint and a half of water, down to twelve ounces, and divided into three equal doses.

OFF. PREP.—*Succus spissatus Sambuci nigrae, E. D.*

Unguentum Sambuci, L. D.

SAMBUCUS EBULUS.

Besides the *nigra*, there is another species, the *Sambucus Ebulus*, Dwarf Elder, or Danewort, which is not uncommon throughout Europe, in waste places, and by the sides of hedges, occasionally occurring in Great Britain, and flowering in July. It grows in many places near London, and is figured in “*English Botany*,” v. 7, t. 475. It may be readily distinguished from the other species, by its low annual, herbaceous stem, leafy stipules, cymes with three principal branches, and its beautiful, dull purplish, or lilac-coloured flowers. The whole plant, with the exception of the flowers, has a nauseous, acrid, bitter taste, and a disagreeable smell. Every part of the plant, especially the bark, is violently cathartic, and sometimes emetic; being stronger and more unpleasant than the Common Elder. The berries are likewise purgative, but in a lesser degree. A syrup prepared from them has been given to the quantity of an ounce, as a laxative; in smaller doses, it is said by Haller, to be used in Switzerland as a deobstruent in chronic diseases. By some, the *Sambucus Ebulus* has even been regarded as an acrid poison.

* Taylor on Poison in relation to Medical Jurisprudence, page 513.



Bossia ensata.

BOSSIÆA ENSATA.—SWORD-STEMMED BOSSIÆA.

CLASS XVII. DIADELPHIA.—ORDER III. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

1. Calyx, showing the Bractes on the Pedicle. 2. Vexillum. 3. Wings. 4. Keel. 5. Stamens. 6. Ovarium, terminated by the Style and Stigma.

A DWARF upright bushy Shrub; *branches* numerous, crowded, branching in all directions, leafy on young plants, but leafless on old flowering ones; young branches flat, linear, nearly equal in breadth throughout, toothed, of a bright green, at first yellowish; old ones becoming nearly round, but winged. *Flowers* numerous, proceeding singly from the teeth of the branches, yellow marked with a brownish purple. *Pedicles* smooth, producing several bractes at the base, and two about the middle of the pedicle. *Bractes* small, ovate, concave, bluntish, the lower ones smallest. *Calyx* tubular, smooth, two-lipped, ciliate, upper-lip largest, slightly cleft, the segments broad and blunt: lower-lip three-cleft, the laciniae ovate, acute, tipped with brown, spreading. *Vexillum* broad, rounded, with a notch in the centre, and a slender unguis tapering to the base, the upper side bright yellow, striated with numerous small lines, with a sort of crescent-shaped brownish purple mark near the base, which extends up through the centre; back of the same colour, all but near the margins. *Alæ* or *wings* spatulate, concave, with a slender unguis on one side at the base, yellow tinged with brownish purple or copper-colour. *Keel* about the length of or scarcely so long as the wings, notched at the point, blunt and bluntly keeled, brownish purple or dark copper-coloured, eared on one side at the base, with a slender unguis on the other. *Stamens* 10, connected about half way up with a longitudinal slit on the upper side: *filaments* slender, ascending, unequal in length, attached to the back of the two-lobed anthers. *Ovarium* linear, smooth. *Style* smooth, ascending. *Stigma* a simple point.

The present pretty species is a native of New South Wales, and has been introduced several years to our collections, where it has been confused either with *B. Scolopendria* or *B. rufa*, but it is very distinct from both; we have ascertained our plant by comparison with *Sieber's* specimens, preserved in Mr. Lambert's Herbarium. It forms a handsome bushy plant, and is a free bloomer; and when covered with its handsome flowers, makes a splendid appearance, flowering from April to June, and is a very desirable plant for the Greenhouse, being dwarf, and easily cultivated in a small pot; succeeding well in an equal mixture of light turfy loam, peat, and sand; and young cuttings, planted in pots of sand, and placed under bell-glasses, will strike root readily.*

Among the diseases of plants, blight is one of the most important, and at the same time one on which a great diversity of opinion prevails. The Greeks and Romans supposed it to arise from the wrath of the gods, manifested in some sort of atmospheric influence; and the Hindoos of the present day consider it a judgment upon the country for the profane eating of beef. Gardeners see it 'coming in the air,' and look upon the insects they find soon after devouring their crops as a consequence of the blight; while those who consider themselves more philosophical observers, laugh at the notion of atmospheric influence, and attribute the whole mischief to the entomological enemies of human industry.

Perhaps both theories may be to a certain extent correct. The state of the atmosphere cannot produce insects, but it may occasion their development and multiplication; just as blight, from the parasitic fungus commonly termed rust may arise from the farina of the parasite being carried to the destined victims by the wind, at a time when the pores of the plant are more than usually open. In Upper India, where the blights from this cause produce all the horrors of famine in vast districts of the country, it is observed that the mischief occurs during an easterly wind. The particles floating in the air which are carried at such times over the wheat crops, penetrate into the open pores, and spreading their minute roots, intercept the sap in its

* Botanical Register, page 51.

circulation till the plant sickens and dies. 'I have sometimes,' says Colonel Sleeman, 'seen the air tinted of an orange colour for many days by the quantity of these seeds which it has contained, and that without the wheat-crops suffering at all, when any but an easterly wind has prevailed; but when the air is so charged with this farina, let but an easterly wind blow for twenty-four hours, and all the wheat-crops under its influence are destroyed—nothing can save them! The stalks and leaves become first of an orange colour, from the light colour of the farina which adheres to them; but this changes to deep brown. All that part of the stalk that is exposed seems as if it had been pricked with needles, and had exuded blood from every puncture; and the grain in the ear withers in proportion to the number of fungi that intercept and feed upon its sap; but the parts of the stalk that are covered by the leaves remain entirely uninjured; and when the leaves are drawn off from them, they form a beautiful contrast to the others which have been exposed to the depredations of these parasitic plants. Every pore, it is said, may contain from twenty to forty of these plants, and each plant may shed a hundred seeds, so that a single shrub, infected with the disease, may disseminate it over the face of a whole district; for in the warm month of March, when the wheat is attaining maturity, these plants ripen and shed their seeds in a week; and consequently increase with enormous rapidity, when they find plants with their pores open ready to receive and nourish them.' Colonel Sleeman adds that he had seen rich fields of uninterrupted wheat cultivation, extending over an area of twenty miles by ten, in the Valley of the Nerbudda, so completely destroyed by this kind of blight, that even the stalks and leaves were considered unfit for fodder.

In England, the disease which is caused or increased by webs and soft insects is popularly called a blight while that in which snails and hard insects are the proximate evil-doers is a 'sneg.' The former comes in a warm south-east wind, and the latter in a cold north-east wind—both of which vehicles, according to a very amusing volume before us, have about as much to do with the vegetable disease as with a rise in the funds. The volume has a good deal of the air and character of the famous 'Natural History of Selbourne; and, together with other instructive and entertaining matter, it contains a great variety of information respecting the various insects whose depredations are set down as the real blight in plants.

The gooseberry-fly, which collects such heavy tithes of one of the wholesomest of our fruits, is a pretty and merry insect, which spends its brief life in sporting with its companions in the sunshine. Marriage, however, spoils his amusement and injures his morals; for his progeny are deposited where they have no business, the eggs dotting the back of the leaves, at regular intervals, like bead-work. In about a week the grubs come forth head foremost, leaving the skins of the eggs standing 'like a row of empty silver purses,' and straightway they begin eating; and this with such effect, that their first meal changes their smoke-coloured vest into

'A doublet of the Lincoln green.'

There are sixty or seventy of these devourers on one leaf: and as *each* grub will eat three leaves to his own share before he is satisfied, by destroying one leaf in proportion you save a couple of hundreds. If let alone however the grub goes on eat—eat—eating, without a moment's intermission, till he is about half an inch in length: here he pauses, apparently for want of skin-room. His black head separates like a mask from the neck, and splits down the middle, and a new head pops out of the opening, with which he looks about him, moving it slowly on all sides, and without any vulgar expression of surprise or other excitement. Being satisfied as to the locality, he next wriggles out his body; and having at length got fairly rid of the insufficient skin, he sets to work to fill the new one, eating without intermission for four or five days more. At the end of this time he casts his skin again, and comes forth of a pale, delicate, green colour. He eats no more. He descends to the earth, and burrowing in it like a mole, to a depth of from two to eight inches, he makes a little oblong cell, and surrounding himself with a tough black cocoon, awaits tranquilly his transformation into a chrysalis, and soon after into a fly. When the eggs are laid before the middle of May, the whole of this history, down to the appearance of the fly, comes within a space of about twenty-eight days; but when the eggs are late in the year, our grub does not think it worth his while to come forth from his subterranean abode, but dozes comfortably in his cocoon till the ensuing spring. If any gardener is so inhospitable as to desire to save his gooseberries from this amusing visitor, the best way would appear to be to beat down and harden the soil all round the plants, so as to convert his temporary retirement into a perpetual imprisonment.'



Fumaria Eximia!

FUMARIA EXIMIA.—CHOICE FUMITORY.

CLASS XVII. DIADELPHIA.—ORDER II. HEXANDRIA.

NATURAL ORDER FUMARIACEÆ.—THE FUMITORY TRIBE.

PERENNIAL root, which produces several stems about a foot and a half in height, terminated with numerous pink flowers at the extremity, which come out on short peduncles. Leaves of a blue green on the upper surface, of a paler green underneath; they are on long stalks, springing from the base, and surrounding the flower-stalks.

The leaves of this graceful little plant, form a handsome cluster close to the ground; while the flower-spikes, which rise to the height of about eighteen inches, are plentifully adorned with blooms during the months of May and June. The handsome style of growth renders this plant truly serviceable and a great favourite, either for borders of flower-beds or for tufts; the latter of which become compact and very ornamental when the plant is well established. The seeds rarely come to perfection in this country; but by separating the roots in the spring the plant is easily increased. Light garden mould suits the nature of this herbaceous perennial. It was introduced in 1812 from North America. This interesting genus of plants has been divided into two other genera, *Cysticapnœ* and *Corydalis*, among which latter is included the plant here figured. The old name is however here retained, as that by which the plant is better known. Some of the species of this genus are noticed in the Pharmacopœias, The *Fumaria officinalis*, or Common Fumitory, is used in cutaneous diseases, but no mention is made of the present species as being in any degree serviceable in the Materia Medica. It is the *Funus terræ* of the older herbalists, so called from the light and smokelike cloudiness of its foliage.

Looking about us (says a popular Author) during a walk to see what subject we could write upon that should be familiar to every body, and afford as striking a specimeu as we could give, of the entertainment to be found in the commonest object, our eyes lighted upon a stone. It was a common pebble, a flint; such as a little boy kicks before him as he goes, by way of making haste with a message, and saving his new shoes.

"A stone!" cries a reader, "a flint! the very symbol of a miser! What can be got out of that?"

The question is well put; but a little reflection on the part of our interrogator would soon rescue the poor stone from the comparison. Strike him at any rate, and you will get something out of him:—warm his heart and out come the genial sparks that shall gladden your hearth, and put hot dishes on your table. This is not miser's work. What fires, what lights, what conflagrations, what myriads of *clicks* of triggers—awful sounds before battle, when instead of letting his flint do its proper good natured work of cooking his supper, and warming his wife and himself over their cottage fire, the poor fellow is made to kill and be killed by other poor fellows, whose brains are strewed about the place for want of knowing better.

But to return to the natural quiet condition of our friend, and what can he do for us in a peaceful way, and so as to please meditation;—what think you of him as the musician of the brooks? as the unpretending player on those watery pipes and flageolets, during the hot noon, or the silence of the night? Without the pebble the brook would want its prettiest murmur. And then, in reminding you of these murmurs, he reminds you of the poets.

A noise as of a hidden brook
In the leafy month of June,
That to the sleeping woods all night
Singeth a quiet tune.—Coleridge.

Yes the brook *singeth*; but it would not sing so well,—it would not have that tone and ring in its music, without the stone.

Then 'gan the shepherd gather into one
His straggling goats, and drove them to a ford,
Whose cœrule stream, rumbling in pebble-stone,
Crept under moss as green as any gourd.

Spenser's Gnat.

Spenser's *Gnat*, observe; he wrote a whole poem upon a gnat, and a most beautiful one too, founded upon another poem on the same subject, written by the great Roman poet Virgil, not because those great poets wanted or were unequal to great subjects, such as all the world think great, but because they thought no care, and no fetching out of beauty and wonder, ill bestowed upon the smallest marvellous object of God's workmanship. The gnat, in their poems, is the creature that he really is, full of elegance and vivacity, airy, trumpeted and plumed, and dancing in the sunbeams,—not the contempt of some thoughtless understanding, which sees in it, nothing but an insect coming to vex its skin. The eye of the poet or other informed man, is at once telescope and microscope, able to traverse the great heavens, and to do justice to the least thing they have created.

But to our brook and pebbles. See how one pleasant thing reminds people of another. A pebble reminded us of the brooks, and the brooks of the poets, and the poets remind us of the beauty and comprehensiveness of their words, whether belonging to the subject in hand or not. No true poet makes use of a word for nothing. "*Cerule stream*," says Spenser; but why *cerule*, which comes from the Latin, and seems a pedantic word, especially as it signifies *blue*, which he might have had in English? The reason is not only that it means *skyblue*, and therefore shews us how blue the sky was at the time, and the cause why the brook was of such a colour (for if he had wanted a word to express nothing but that circumstance, he might have said *sky-blue* at once, however quaint it might have sounded to modern ears:—he would have cared nothing for that; it was his business to do justice to nature, and leave modern ears, as they grew poetical to find it out); but the word *cerule* was also a beautiful word, beautiful for the sound, and expressive of a certain liquid yet neat softness, somewhat resembling the mixture of soft hissing, rumbling, and inward music of the brook.—We beg the reader's indulgence for thus stopping him by the way, to dwell on the beauty of a word; but poets' words are miniature creations, as curious after their degree, as the insects and the brooks themselves; and when companions find themselves in pleasant spots, it is natural to wander both in feet and talk.

So much for the agreeable sounds of which the sight of a common stone may remind us, (for we have not chosen to go so far back as the poetry of Orpheus, who is said to have made the materials of stone-walls answer to his lyre, and dance themselves into shape without troubling the mason.) We shall come to grander echoes bye-and-bye. Let us see meanwhile how pleasant the sight itself may be rendered. Mr. Wordsworth shall do it for us in his exquisite little poem on the fair maiden who died by the river Dove. Our volume is not at hand, but we remember the passage we more particularly allude to. It is where he compares his modest, artless, and sequestered beauty with

A violet by a mossy stone
Half hidden from the eye;
Fair as the star, when only one
Is shining in the sky.

Is not that beautiful? Can any thing express a lovelier loneliness than the violet half hidden by the mossy stone—the delicate blue-eyed flower against the country green? And then the loving imagination of this fine poet, exalting the object of his earthly worship to her divine birth-place and future abode, suddenly raises his eyes to the firmament, and sees her there, the solitary star of his heaven.

But stone does not want even moss to render him interesting. Here is another stone, and another solitary evening star, as beautifully introduced as the others, but for a different purpose. It is in the opening words of Mr. Keats's poem of Hyperion, where he describes the dethroned monarch of the gods, sitting in his exile:—

Deep in the shady sadness of a vale,
Far sunken from the healthy breath of morn,
Far from the fiery noon, and Eve's one star,
Sate grey-hair'd Saturn, quiet as a stone.

Quiet as a stone! Nothing certainly can be more quiet than that. Not a syllable or a sigh will stone utter, though you watch and bear him company for a whole week on the most desolate moor in Cumberland. Thus silent, thus unmoved, thus insensible to whatever circumstances might be taking place, or spectators might think of him, was the soul-stunned old patriarch of the gods. We may picture to ourselves a large, or a small stone, as we please—Stone-henge, or a pebble. The simplicity and grandeur of truth do not care which. The silence is the thing,—its intensity, its unalterableness.

Our friend pebble is here in grand company, and you may think him (though we hope not) unduly bettered by it. But see what Shakespeare will do for him in his hardest shape and in no finer company than a peasant's:—

Weariness
Can snore upon the flint, when restive sloth
Finds the down pillow hard.

Sleeping on hard stone would have been words strong enough for a common poet; or perhaps he would have said "resting," or "profoundly reposing;" or that he could have made his "bed of the bare floor;" and the last saying would not have been the worst; but Shakespeare must have the very strongest words, and really profoundest expressions and he finds them in the homeliest and most primitive. He does not mince the matter, but goes to the root of both sleep and stone—can *snore* upon the *flint*. We see the fellow hard at it—*bent* upon it—deeply drinking of the forgetful draught.

Green, a minor poet, author of the "*Spleen*," an effusion full of wit and good sense, gives pleasant advice to the sick who want exercise, and who are frightened with hypochondria.

Fling but a stone, the giant dies.

And this reminds us of a pleasant story connected with the flinging of stones, in one of the Italian novels. Two waggish painters persuade a simple brother of theirs, that there is a plant which renders the finder of it invisible, and they all set out to look for it. They pretend suddenly to miss him, as if he had gone away; and to his great joy, while throwing stones about in his absence, gives him great knocks in the ribs and horrible bruises, he hugging himself all the while at these manifest proofs of his success, and the little suspicion which they have of it. It is amusing to picture him to one's fancy, growing happier as the blows grow worse, rubbing his sore knuckles with delight, and hardly able to ejaculate a triumphant Hah! at some excessive thump in the back.



Juniperus Sabina?

JUNIPERUS SABINA.—COMMON SAVIN.

CLASS XXII. DICECIA.—ORDER XII. MONADELPHIA.

NATURAL ORDER, CONIFERCE.—THE FIR TRIBE.

THIS shrub rises but a few feet in height; it is covered with a reddish-brown bark, and sends off many branches, which are numerously sub-divided; the leaves are numerous, small, erect, opposite, firm, and wholly invest the younger branches, which they terminate in sharp points. The flowers are male and female on different plants; the calyces of the male flowers stand in a conical catkin, which consists of a common spike-stalk, in which three opposite flowers are placed in a triple row, and a tenth flower at the end. At the base of each flower is a broad short scale fixed laterally to a columnar pedicle; there is no corolla; the filaments in the terminating flower are three, tapering, united at the bottom into one body, and furnished with simple antheræ, but in the lateral flowers the filaments are scarcely perceptible, and the antheræ are fixed to the scale of the calyx. The calyx of the female flowers is composed of three small permanent scaly segments growing to the germen; the petals are three, stiff, sharp, permanent; the germen supports three styles, supplied with simple stigmata: the fruit is a roundish fleshy berry, marked with tubercles, which are the vestiges of the petals and calyx; when ripe the berry is of a blackish purple colour, and contains three small hard irregular shaped seeds. It flowers in May and June.

Savin is a native of the South of Europe and the Levant; it has been long cultivated in our gardens. The leaves and tops of Savin have a moderately strong smell of the disagreeable kind, and a hot, bitterish, acrid taste; they give out great part of their active matter to watery liquors, and the whole to rectified spirit. Distilled with water they yield a large quantity of essential oil. Decoctions of the leaves, freed from the volatile principle by inspissation to the consistence of an extract, retain a considerable share of their pungency and warmth along with their bitterness, and have some degree of smell, but not resembling that of the plant itself. On inspissating the spirituous tincture, there remains an extract consisting of two distinct substances, of which one is yellow, unctuous or oily, bitterish, and very pungent; the other black, resinous, tenacious, less pungent, and subastringent.

Savin is a powerful and active medicine, it heats and stimulates the whole system very considerably, and is said to promote the fluid secretions. The plant we are told has been frequently employed, and with too much success, for purposes the most infamous and unnatural. It seems probable, however, that it has in this way been somewhat over rated, as it is found very frequently to fail as an emmenagogue, though this, in some measure, may be ascribed to the smallness of the dose in which it has been usually prescribed by physicians; for Dr. Cullen observes, "that Savin is a very acrid and heating substance, and I have been often, upon account of these qualities, prevented from employing it in the quantity perhaps necessary to render it emmenagogue; but I have been frequently disappointed in this, and its heating qualities always require a great deal of caution." Dr. Home appears to have had very great success with this medicine, for in five cases of amenorrhœa which occurred at the Royal Infirmary at Edinburgh, four were cured by the Sabina, which he gave in powder from a scruple to a dram twice a day. He says it is well suited to the debile, but improper in plethoric habits, and therefore orders repeated bleedings before its exhibition. Externally Savin is recommended as an escharotic to foul ulcers, syphilitic, warts, &c.

Professor Taylor says that, "the *Juniperus Sabina* of botanists, is a well-known plant, the leaves or tops of which contain an irritant poison in the form of an acrid volatile oil of a peculiar terebinthinate odour. They exert an irritant action, both in the state of infusion and powder. They yield by distillation about three per cent. by weight of a light yellow oil, on which the irritant properties of the plant depend. The powder is sometimes used in medicine in a dose of from five to twenty grains. Savin is not often taken as a poison for the specific purpose of destroying life, but this is occasionally an indirect result of its use, and it therefore demands the attention of the medical jurist. From cases which have been referred to me, I believe that poisoning by it is much more frequent than is commonly supposed.

"The strong local irritant properties of the leaves, which depend on the essential oil, are well known from the uses of savin-ointment in pharmacy. The plant grows extensively in country places, and is easily accessible to the evil disposed. It does not appear to have attracted much notice on the continent, for Orfila is silent on the subject, except in so far as it affects dogs. Two cases of its fatal effects in the human female were communicated to Dr. Christison. In one, a dose of the strong infusion was twice taken by a female. She suffered from severe pain and strangury, aborted, and died five days afterwards. On inspection, there was extensive peritoneal inflammation, with the effusion of fibrinous flakes; the inside of the stomach was red, with patches of florid extravasation. The contents had a green colour, and savin was proved to be present by the microscope. In the second, a girl was seized with violent colicky pains, vomiting, tenesmus, dysuria, and fever. After suffering several days she died. The stomach and intestines were inflamed; the former in parts black, and at the lower curvature perforated. A greenish powder was also found in this case, and when washed and dried it had the pungent taste of savin.

"The dried powder, which, owing to the loss of volatile oil is less energetic than the fresh tops, is given in doses of from five to fifteen grains. The medicinal dose of the essential oil is commonly from two to six drops. The infusion and decoction, which are sometimes used for the expulsion of worms, are less energetic than the fresh tops, because they cannot be prepared without giving rise to a loss of the volatile oil. The oil is not so irritant as it is commonly supposed to be; but in those cases in which it has been said to produce no marked effects in large doses, it is very probable that it was much adulterated.

ANALYSIS.—“When the poison has been taken in the form of decoction or infusion, no test can be applied. The fact of poisoning can then only be elucidated by the symptoms and by circumstantial evidence. If the oil has been taken, it may be separated by distillation, and obtained by agitating the distilled product with one-third of its bulk of ether. Perhaps the most common case is that where the *powder* has been taken. It will be remarked from a case reported by Dr. Christison, and from that which occurred to Mr. Lord, that in spite of great vomiting the powder remained in the stomach for a period of five days. The contents appear like green-pea soup. That the colour is not owing to bile may be proved by diluting a portion with water, when the green chlorophylle, from its insolubility, will subside in a dense insoluble stratum, whereas if the colour were due to altered bile, the whole of the liquid would remain coloured. By washing the green matter in water, and drying it on plates of glass or mica, evidence may be obtained under a good microscope, by the rectilinear course of the fibres and the turpentine cells, that the substance belongs to the fir tribe. The only other poison of the coniferous order is the yew (*Taxus baccata*), but this differs from savin in having a lancet-shaped termination to the top of the leaves, while, savin has a sharply acuminate point. A portion of the green powder dried and well rubbed will give the peculiar odour of savin. When freed from organic matter, it will yield, by distillation with water, the essential oil of savin.”

OIL OF SAVIN.—This oil is of a light yellow colour, and it has a powerful terebinthinate odour, sufficiently peculiar to render this an easy means of identification. A greasy stain made by this oil on paper is entirely dissipated by heat, or only a slight trace of resin is left. It is lighter than water, but insoluble in it, giving to it, however, its odour and an acid reaction. It forms a milky solution with rectified spirit, but a clear transparent solution with ether. It is exceedingly soluble in ether, and by this menstruum it may be separated from watery liquids, as the ether floats with it to the top. Nitric acid in the cold, slowly gives to the oil a dark red-brown colour.

Gilpin, in his *Forest Scenery*, says that, “there is a tree in the island of Java, called the Upas or Poison Tree, which, in the history of curious trees, should not be omitted; though the accounts of it are so wonderful that some have esteemed them fabulous. They are given to the public by a surgeon belonging to the Dutch East India Company, of the name of Foersch, who was stationed at Batavia in the year 1774. Surprising, however, as these accounts may be, they are accompanied with so many public facts and names of persons and places, that it is somewhat difficult to conceive them fabulous. The abridged narrative of this strange production is this:—

“The Upas grows about twenty-seven leagues from Batavia, in a plain surrounded by rocky mountains, the whole of which plain, containing a circle of ten or twelve miles round the tree, is totally barren. Nothing that breathes or vegetates can live within its influence. The bird that flies over it drops down dead; the beast that wanders into it expires. The whole dreadful area is covered with sand, over which lie scattered loose flints and whitening bones. This tree may be called the emperor’s great military magazine. In a solution of the poisonous gum which exudes from it, his arrows and offensive weapons are dipped. The procuring therefore of this poisonous gum is a matter of as much attention as of difficulty. Criminals only are employed in this dreadful service. Of these several every year are sent, with a promise of pardon and reward if they procure it. Hooded in leathern cases, with glass eyetholes, and secured as much as possible from the foul effluvia of the air they are to breathe, they undertake this melancholy journey, travelling always with the wind. About one in ten escapes, and brings away a little box of this direful commodity.

“Of the dreadful and sudden effect of this poison the author saw many instances. He mentions among others, the execution of thirteen young ladies of the emperor’s seraglio, who, having been convicted of infidelity, were condemned to die by the poison of upas, which is considered in Java, like the axe in England, as an honourable instrument of death. At eleven o’clock in the forenoon these unhappy victims were led into a court in the palace, where a row of thirteen posts had been erected. To these they were bound. As they stood trembling, they were obliged to confess the justice of their sentence, which each of them did by laying one hand on the koran and the other on her breast. When these confessions were finished, and a few religious ceremonies, on a sign given by the judge, an executioner stepped forward, who bared their breasts, and, amidst their cries and shrieks, with a poisoned lancet made a slight incision in each. The author says, he stood by with his watch in his hand. In five minutes they were seized with convulsive spasms, excruciating agonies succeeded, and in sixteen minutes they were all dead. A frightful change came on. From being objects of beauty, they became spectacles of horror. Livid spots broke out upon them, their faces swelled, their cheeks became blue and their eyes yellow.”

The history of the Upas affords, says Professor Burnett, a melancholy instance of the degree to which a love of the marvellous, and a passion for telling mysterious tales, by which a short-lived fame may be enjoyed, to be succeeded however by enduring contempt, will mislead even well-educated men; for in the relation of Foersch falsehood was so craftily blended with truth, that his story, although received at first with caution, was, from its very circumstantial details, for years esteemed, notwithstanding its wonderful character, as an authentic record. But, since his many wilful misrepresentations have been detected, even those parts of the narration which are true, or based on truth, have been doubted, and the whole regarded as a cunningly devised fable. The researches of modern travellers of credit have, however, established the existence of the Upas-tree; and other very recent investigations have assured us of the reality of the Upas-valley also. The collation of these two series of facts will put us in possession of the chief materials whence Foersch composed his tale, and expose the temptation by which he was seduced to declare that he had himself seen those things of many of which he had only heard, and which, marvellous enough as they are, the ignorance and superstition of the narrators had probably in the first place exaggerated, but which he seems to have conjoined for the sake of effect, and to have still further estranged from truth.



Billardiera scandens.

BILLARDIERA SCANDENS.—CLIMBING BILLARDIERA.

CLASS V. PENTANDRIA.—ORDER V. PENTAGYNIA.

NATURAL ORDER, PITTOSPOREÆ.

1. Calyx. 2. One of the Petals. 3 The five Stamens. 4. The woolly Ovarium, terminated by the smooth Style and simple Stigma.

A SMALL slightly climbing evergreen shrub; branches slender, tinged with red, and thickly clothed with villous spreading hairs; leaves alternate, variable, oblong, lanceolate or oblongly linear, acute, very much undulate at the edges, hairy on both sides; petioles short, hairy, more or less reddish. Flowers solitary or sometimes in pairs, terminal, pendulous, straw-coloured; pedicles short, hairy; bractes narrowly linear, taper-pointed, hairy, deciduous; calyx of five sepals, that are lanceolate, taper-pointed, erect, thickly clothed with villous hairs; petals five, oblong, acute, reflexed at the points; stamens five, distinct, inserted on the receptacle and alternate with the petals; anthers blue or purple; ovarium densely clothed with soft woolly down, terminated by a smooth simple style; berry about the size of a hazel-nut, obtuse at both ends, densely tomentose, full of fleshy pulp, and containing numerous seeds in four series.

The present plant forms a small climbing shrub, well adapted for a conservatory or greenhouse where it is not wanted to attain a great height; it is one of the very few eatable fruits that are native of New Holland, and is of itself not very agreeable to the palate. It succeeds well in a mixture of light sandy loam and peat; and young cuttings, planted in sand under bell-glasses, strike root readily; it may also be raised from seeds, which are produced in great abundance.

The genus was named by Sir J. E. Smith, the late President of the Linnean Society, in honour of J. J. Labillardiere, the celebrated French Naturalist, who accompanied the expedition in search of La Peyrouse.*

It sometimes happens that without any particular cause for anxiety or depression, the mind is unaccountably perplexed and weighed down; and at such seasons even a dream of the night may produce a painful effect, while our sad memories or futile regrets cannot altogether be dispelled even by the strongest exertion of our reasoning powers. I had arisen one morning to fulfil the daily round of appointed duties, but in a spiritless, discontented, and repining mood. Feelings of the kind usually hold their sway in the silent and secret recesses of the heart; for we know that it is weak and wrong to indulge in them, and we are ashamed to seek for sympathy, which indeed can be but sparingly accorded in such cases. Towards the afternoon I sallied forth to try the effect of a solitary ramble, knowing this to prove frequently the best restorative for a nervous or morbid temperament. In a secluded spot, from whence a gentle pastoral valley was visible, between the spreading branches of old linden-trees, overshadowing the pathway, which led onward amid a collection of mossy hillocks, on whose broken surface scanty heather tufts and delicate wild flowers were scattered, an object attracted my attention. It moved slowly and with apparent difficulty, now disappearing behind the hillocks, then emerging and stooping down, and altogether presenting a very peculiar appearance. I saw presently that it was a human figure, which I supposed at first to be some poor misshapen child seeking for flowers. But although correct as to the employment, I found on nearer approach, that the gatherer was no child, but an unsightly and deformed cripple of mature years.

She supported herself on crutches, and besides the hideousness of the most unnatural distortion it is possible to imagine, added to a dwarf-like stature, her wan but placid face was rendered yet more ghastly by heavy linen bandages bound around it, and across her forehead. Her well-patched coarse garments were scrupulously clean, while her long thin white fingers were eagerly stretched forth to pluck the flowers, which she added to her store with childish delight.

I volunteered my assistance, and soon not one more flower was to be found. She thanked me in a sweet low voice, and quietly set herself down on a bank of moss, and began to arrange her humble nosegay: at first I had fancied that she was imbecile, but that thought was quickly dispelled on hearing her speak, and meeting the earnest intelligent gaze of her deeply-sunken but bright black eyes.

On sitting down to rest beside her, and inquiring if she was fond of flowers, as she took such pains to collect them, "Oh yes, ma'am!" she answered, "I love them dearly; they do me so much good with their happy looks and sweet scents. I take them home with me, for they ease my pain when I have them near me to speak to. I am but a silly one, though I often remember Him who made both me and the flowers."

* Flora Australasica.

I asked where she suffered the most pain. "In my head, ma'am; it has been so ever since I can remember—sometimes better, sometimes worse: but I will sing you a song if you please, for helping me to gather this pretty nosegay."

It was useless my requesting her to desist from the exertion, she began without heeding my remonstrance, and as if it were the return she habitually made for kindness, warbling the words of a bygone and very beautiful ballad. An attempt at sentimental description, when speaking of this poor creature, would be ludicrous and unfeeling; yet her voice was so low and touching, and so full of gentle pathos, that as I listened to the plaintive strain and the old sad words, many painful but treasured memories were called up, and I could not restrain my tears.

Unfortunately I had no money about me, nor could I succeed in prevailing on the songstress to call at my home, which I found she must pass on returning to her temporary lodging. 'She disliked entering any house, unless obliged;' but she promised to be there again to-morrow, where the blue-bells grew, and when the lengthening shadows of the pale autumnal afternoon would mark the time for her.

Her story, as she told it to me, was a short and simple one, and yet not commonplace; nor could I doubt its truth for a moment, for 'the eye never deceives.'

She had been an orphan since the age of sixteen. Her father, who was a woodman, had been killed by an accident before her birth when engaged in felling trees in the New Forest. The widow supported herself and her child by singing about the country, and working in the fields when she could get work to do; for as the daughter of a wandering Welsh harpist, the gift of song and the love of roving were in her hereditary. The unhappy circumstances, however, attending the birth of her infant had fallen heavily on the little innocent, occasioning, it was supposed, some organic derangement of the complex vessels of the head, and owing to the ignorant treatment of quacks, to whom her mother resorted, and a fall received in early infancy, making her, in her own sad words, "What you see, ma'am."

When her mother died, a benevolent physician to whom her case became known, had given her a recommendation to a London hospital, defraying her expenses thither; naturally concluding that clever and multiplied advice, together with care and judicious management, might do much towards effecting a cure, or at any rate ameliorating her condition. "But after a long time," she added, "all the doctors agreed that my case was an incurable one, and that fresh air and perfect freedom were the only things they could recommend as likely to ease my pain."

She told me the name of the worthy practitioner who had originally befriended her, and who had continued to allow her a small sum weekly, sufficient for her maintenance, until two years previous to this period, when death had deprived the orphan cripple of her benefactor.

Since then, walking all over England and Wales, she had supported herself by singing, when able to do so, and by the gifts of the charitable. The open air was as necessary and nutritious to her as daily food, while her childish delight in gathering wild flowers formed the sole recreation and solace of her lonely existence—lonely as that of the lepers of old.

The outcast added in a gentle deprecatory tone, but far removed from the whine of the common mendicant, and putting her hand involuntarily on her bandaged brow, "God is very good to me, for I have never wanted; and though He sees fit to send me pain, yet with the pain there is healing, for I often forget all when I look upon the beautiful things of His making. Indeed I am very happy; for if such fair flowers are to be found on earth, where the birds sing and the waters are so clear, and the trees are so grand, how much more beautiful our home in heaven will be!"

"But are we so sure of seeing heaven?" I hesitatingly said, wishing to hear the answer. Her answer was a silent smile, but a serious and solemn one, only faintly lighting up her pallid suffering countenance; and when I parted with her, it was in the earnest and full conviction that this destitute cripple was indeed, as she affirmed, *very happy*; and passing rich also in the possession of the priceless graces of patient cheerfulness, resignation, and faith.

This little adventure had given me a lesson and administered a reproof, which all discontented and repining individuals may not have the good fortune to encounter so opportunely. For my own part, the light of that poor cripple's smile is to this day upon my heart; and in the midst of all the sorrows and anxieties of life, whether real or imaginary, my harassed thoughts often flit away to employ themselves happily and beneficially in—gathering flowers.



Gratiola officinalis.

GRATIOLA OFFICINALIS.—HEDGE-HYSSOP.

CLASS II. DIANDRIA.—ORDER II. MONOGYNIA.

NATURAL ORDER SCROPHULARINEÆ.—THE FIGWORT TRIBE.

Fig. (a) represents a flower, spread to show the two fertile and two abortive stamens; (b) the pistil; (c) the capsule; (d) a section of ditto; (e) a seed.

THIS plant, the *Gratiola* of the Dispensatories, derives its generic appellation from the diminutive of *gratia*, grace or favour; and the epithet *gratia Dei*, by which it was formerly distinguished, is sufficiently expressive of the high estimation in which it was held by the ancients for its salutary qualities. It is a low perennial, not indigenous to this country, a native of the south of Europe, growing in most pastures and flowering in June and July.

Haller observes that, about Yverdun it is frequently found in such abundance as to be very injurious to the cattle, and that many meadows in the environs are rendered quite useless as pasture grounds from the excessive prevalence of this plant.

From a cylindrical, white, creeping, jointed rhizoma, rise several slender, smooth, round, erect stems, to the height of a foot or eighteen inches. The leaves are numerous, lanceolate, opposite, sessile, pointed, serrated towards the ends, of a bright green colour, two inches long, nearly half an inch broad, and obscurely punctured. The flowers are inodorous, about an inch long, axillary and solitary; the calyx consists of five elliptical pointed segments, with a pair of lanceolate spreading bractæ; the corolla is tubular, divided at the lip into four obtuse segments, the uppermost of which is broadest, emarginate and reflexed, the others straight and equal; the tube is yellowish, with reddish streaks; the limb pale lilac or purple. The filaments are four, awl-shaped, shorter than the corolla, only two of which are furnished with anthers; the two perfect ones are shorter than the others, and are inserted at the base of the uppermost segment, about the middle of the tube of the corolla: the germen is ovate, superior, supporting a slender erect style, with a divided stigma. The capsule is ovate, bilocular, and contains numerous small seeds.

QUALITIES AND CHEMICAL PROPERTIES.—It is inodorous, but impregnated with a bitter nauseous taste, which it is said sometimes produces a sense of constriction in the tongue. Marcgraaf states that its watery extract is bitter, but that the bitter principle exists most abundantly in the resinous extract. Vauquelin has analyzed it, and obtained a bitter, active, uncrystallizable, resinous principle, which is soluble in alcohol, and requires a very large quantity of boiling water to dissolve it. "When sulphuric acid is added to the unstrained infusion, it emits the odour of tamarinds; and when the infusion is filtered and slowly evaporated, spicular crystals are formed, which appear to be tartaric acid."

From a paper read some time since by Dr. Whiting, at a meeting of the Medico-botanical Society of London, it appears that *Veratria*, the active principle of *Colchicum*, and white Hellebore, has been most unexpectedly discovered in *Gratiola*. This will readily account for its violent effects when given in over doses. It is a curious coincidence that the *Eau Medicinale* which was made from the *Gratiola*, should have been imitated by spirituous infusions of *Colchicum* and *Veratrum*, both containing the same active principle, and that the modern *Vinum Colchici* should have superseded this old *Vinum Gratiolæ*, formerly esteemed a specific in gout.

POISONOUS EFFECTS.—Given in over doses, it produces violent vomiting and hypercatharsis.

"At a quarter past ten, three drachms and a half of watery extract of Hedge-Hyssop were introduced into the stomach of a small strong dog, and the œsophagus was tied. At eight in the evening the animal had not exhibited any remarkable phenomenon. The next day at ten in the morning he uttered plaintive cries; he was lying down on the side, and expired an hour after: his breathing had not been impeded. The mucous membrane of the stomach exhibited throughout its whole extent, a cherry-red colour; it was black wherever it forms the folds observed in the interior of this viscus; it was easy to be assured that this last alteration was the consequence of a certain quantity of black extravasated blood, within the space which separates it from the subjacent muscular coat. This last was nearly in its natural state; the interior of the rectum was evidently inflamed; all the remaining portion of the alimentary canal was a little red. The lungs did not appear affected; there was no serosity in the ventricles of the brain; the exterior cerebral veins were distended with black blood. The pia mater was injected and of a vermilion red colour.

"Twenty-eight grains of the same poisonous substance, dissolved in four drachms of water, were injected into the jugular vein of another robust dog of middle size. An hour after the animal had a motion; he experienced some giddiness, and became as it were insensible, lay down and expired two hours after the injection. It was impossible to discover the least trace of alteration in the texture of the digestive canal."

M. Orfila concludes from numerous experiments:—

“1st. That an extract of Hedge-Hyssop produces a local irritation extremely violent.

“2nd. That it appears to be absorbed, and that its effects depend on the sympathetic lesion of the nervous system.

“3rd. That it is much more active when injected into the veins.”

The *Gratiola Officinalis* is commonly known, says Professor Taylor, under the name of Hedge-Hyssop. Observations made on animals and on man, show that it is a strong local irritant when given in decoction or infusion. A series of cases observed by M. Bouvier are reported by Orfila, in four of which this plant was used, under the form of decoction, as an enema. In this state it had been prescribed for four females by some herb doctors. The result was, that in one instance violent vomiting and purging, with syncope, were induced. In another case there was constriction of the throat, with hydrophobic symptoms and convulsions. The patient died in two days (*Toxicologie*. ii. 128). The leaves of this plant might be in some instances identified botanically, but in the state of decoction or infusion there are no tests which would determine its nature.

MEDICAL PROPERTIES AND USES.—This medicine was formerly prescribed on the continent as a hydragogue purgative and diuretic; and Heurnius, Ettmuller, Hartmann, Joel, and others, have administered it successfully for dropsy of the cellular tissue; likewise of the peritoneum when unaccompanied by inflammatory action, and unallied with flaccidity of the muscular fibre or with paleness. It has likewise been given in some other affections, as hypochondriasis, atonic gout, rheumatism, &c. which were accompanied or appeared to be produced by inactivity or torpor of the intestinal canal, while others have administered its resinous part in small doses, to promote vomiting, or as a substitute for ipecacuanha in dysentery. Dr. Kostrzewski, of Warsaw, has offered some remarkable instances of its powerful influence in soothing and suspending irritation, and asserts that three maniacs in the hospital at Vienna, were recovered by its use.

Dr. Perkins, of Coventry, states that it forms the basis of the *Eau Medicinale*, and that the recipe was given to him by the Count of Leiningen, who paid five hundred ducats for it. This nobleman was a person of extensive reading, and a munificent patron of the arts, and had been in early life a martyr to the gout; an exemption from which for several years, he attributed to the use of this medicine. The following is the form:—

R “*Herbæ gratiolæ officinalis siccatae unciam*
Radici ejusdem Herbæ semunciam incisæ, et contusæ: adde
Vini Hispanici uncias sedecim.
Digere leni calore per dies octo, et cola.”

“Of this vinous tincture, a tea-spoonful is to be taken at bed-time, drinking after it half-a-pint of beef tea; and if after the lapse of twenty-four hours all pain has not vanished, half a tea-spoonful more of the *Gratiola* wine is to be taken in a similar manner. Dr. Reece, who has paid particular attention to the preparation of this drug, and to its administration, very properly observes that, ‘a tea-spoonful is at all times a very definite measure, and liable to vary with fashion,’ and therefore recommends forty-five drops as the dose to begin with. This gentleman also remarks, ‘that in producing its effect of allaying irritation in gout and rheumatism, it was done without disturbing the system, or producing those effects on the general health which attend the use of opium;’ he has therefore, with a laudable zeal, extended its use to allay morbid irritation of the intestines and of the lungs, and has found that an oxymel made with the herb, is very efficacious in asthma, constitutional or winter cough, &c. He adds that, ‘in the use of the *Gratiola*, it must always be exhibited in the first instance so as to nauseate the stomach, or to produce an aperient effect on the bowels, and then kept as near to this dose without producing any further unpleasant effect.’ According to Bergius, the dose of the herb in substance is from fifteen to thirty grains, but he states that a scruple often acts on the bowels, and produces nausea and vomiting. He also affirms that ten grains united with five of powdered gentian, administered twice a-day, has been useful in autumnal quartan agues. Of an infusion, made with ʒij of the dried herb, to half-a-pint of boiling water, from f ʒiv to f ʒi may be given three times a-day. *Gratiola* is not admitted into the list of *Materia Medica* of the London College. The German physicians have long thought much more highly of the medicinal powers of *Gratiola* than their brethren of the British schools. Hufeland commends it for being ‘extremely efficacious in jaundice, for example—and in ascarides; a circumstance which, as Thompson adds, is like to be the case, from its operating on the rectum. In France, *Gratiola* is a favourite medicine among the peasantry, who use it both as an emetic and purgative; and its provincial synonyme is ‘*Herbe à pauvre homme.*’”



Anagallis arvensis.

ANAGALLIS ARVENSIS.—SCARLET PIMPERNEL.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ROTACEÆ.

FIG. (a) exhibits a single stamen; (b) the calyx, germen, and pistil; (c) the fruit.

THIS is a low, annual plant, with elegant scarlet flowers, and a procumbent stem; resembling common chickweed. It is indigenous to Britain; growing plentifully in cultivated grounds, particularly in rich garden soils; and flowering nearly the whole summer.

Pimpernel has a small fibrous root. The stem is square, much branched, smooth, slender, and clothed with small ovate, shining green leaves, which are either placed opposite in pairs, without foot-stalks, or four together, and marked with purplish spots underneath. The flower-stalks are angular, opposite, one flowered, bending downwards after flowering. The calyx is five-parted, acute, keeled, and permanent. The corolla is bright scarlet, violet coloured at the mouth, syn-or-gamo-petalous, wheel-shaped, and divided into five ovate segments, the margins of which are slightly notched, or beset with minute glands. The stamens are five, purple, hairy, and supporting yellow heart-shaped anthers. The germen is globular; the style purple, filiform, with a capitate stigma. The pyxidium is spherical, about the size of a pea, opening horizontally, and containing several small, brown, angular, roughish seeds.

The name *Anagallis*, retained from the old Greek and Roman authors, is by some, supposed to be deduced from the verb *ναγέλλω*, to smile, because the plant is conspicuous for the beauty of its flowers; others believe it to refer to the former reputed properties of the plant, which is extolled both by Dioscorides and Pliny, for removing obstructions of the liver, which they considered the cause of low-spirits and despondency. The flowers expand only about the middle of the day, and close at the approach of rain; and from this circumstance it is denominated the *shepherd's*, or *poor man's weather glass*.

It likewise forms one of the Floræ horologicæ, opening its flowers regularly, about eight minutes past seven in our latitude, and closing them about three minutes past two in the afternoon.—(*Loudon*.)

PROPERTIES AND USES.—Pimpernel formerly held a place in our pharmacopœias, and was considered to be detergent, vulnerary, and cephalic; and by the ancients it has been extolled for its virtues in gout, gravel, convulsions, and the plague. Gelin and others have asserted its success in hydrophobia; and had subsequent experience confirmed its powers in this disease, we should view it not merely as a pretty flower, but as one of the most useful in the vegetable kingdom. It is not now employed, but the following account from Orfila, will prove its poisonous effects.

“At eight in the morning, three drachms of the extract of Pimpernel, dissolved in an ounce and a half of water, were introduced into the stomach of a robust dog. At half-past twelve he had a motion. At six in the evening he was dejected. At eleven, sensibility appeared diminished. The next morning at six, he was lying upon the side, and appeared to be dead: he might be displaced like an inert mass of matter. He expired half an hour after. The mucous membrane of the stomach was slightly inflamed: the interior of the rectum was of a bright colour; the ventricles of the heart were distended with black coagulated blood; the lungs presented several livid spots, and their texture was preternaturally dense. Two drachms of the same extract, applied to the cellular texture of a dog's thigh, produced death in twelve hours: and the heart and lungs presented the same appearance as in the other.

Birds of the passerine kind, are said to feed on the seeds with avidity.

The term ‘marsh’ naturally suggests to the mind the image of a greenish lake, shallow, miry, and ill-odorous, enamelled with water-lilies and waving rushes, and swarming with frogs in the summer, and with snipes in winter. This, however is not a description of the locality called the Marsh, in the environs of Paris; it was doubtless at a former period, the receptacle of seasonal inundations, which, having no outlet, gave it the character from whence it derived its present name; it has long however, been drained and cultivated, and transformed into a vegetable garden.

Destined solely for the culture of edible plants and roots, these marshes or market-gardens, surround the capital on every side, both within and without the enclosure of the walls. By whatever barrier you leave the city,—whether you follow the dusty route of the castle of Vincennes, or the imposing avenue of Neuilly—whether you visit the funeral shades of Pere-la-Chaise, or the sandy plain of Grenelle—the scene that everywhere meets the eye, is a series of interminable parallelograms, planted with salads, spinage, carrots, cabbages, horse-radish, and haricot-beans. Not an inch of land is wasted in these inclosures. The pathways running between the squares, are scarcely wide enough to afford a passage to a single pedestrian; the glazed sashes which cover the melons, sparkle in the sun like plates of silver. The neatness which reigns in these plots of ground, the vigour of the vegetation, the exquisite condition of every little bed and border—all announces that the art of cultivation is there carried to the highest point of developement.

In a corner of the enclosure, rises some few feet above the soil, a cabin covered with thatch. Judging by the taste which presided at the erection of such a habitation, by its ruinous condition, but ill-concealed

by the undulating branches of the vine, and by its miserable aspect, one would imagine it not the dwelling of a French citizen, at the gates of the French Capital, but the squalid lair of a savage, reared a hundred leagues from all examples of civilised life. The interior is void of flooring and papering, and nearly so of furniture. From a hook over the chimney-piece hangs horizontally, a flint-gun, with ponderous butt and rusty barrel; here and there a few queer images hide, but do not adorn, the dilapidated walls; near this vile domicile, stands a shapeless shed, which serves as a stable, a cart-house and a magazine; and near the dwelling is the smallest of possible pleasure-gardens, evidently spared with regret from more profitable cultivation, where, at the foot of an apricot-tree, the violet, the rose, the clematis, and the sweet basil diffuse their welcome odours.

Let us now glance at the inmate of this undesirable dwelling-place. The animals which are considered the symbols of labour and industry—the beaver which builds his cabin, the ant which digs his sinuous granary beneath the sward, the bee which labours profitably from dawn to sunset, the woodpecker whose patient beak perforates the bark of the oak—are inactive beings, indolent, torpid, compared to the marsh-gardener.

It is hardly two o'clock in the morning when he leaves his bed. The roots, plucked and tied in bundles the evening before, are methodically arranged in the well-worn vehicle. The cultivator makes the best of his way to market, and, transformed into a merchant till seven o'clock in the morning, divides his commodities among the fruiterers, market-women, and hotel-keepers of the capital.

The method of watering adopted by the marsh-gardener, is of ingenious simplicity. The well is situated in the centre of the grounds, and surmounted by an axle-tree or cylinder, round which, the rope is entwined; a couple of old cart-wheels, placed horizontally at about four feet distance from each other, and united by laths, ordinarily compose the cylinder. A living skeleton of a horse, causes the vessels attached to the rope, to ascend or descend alternately, according as his movements are directed to the right or the left. To obtain from the poor animal this mechanical docility, they cover his eyes with a cowl—blind him, in short—that he may not go astray, but perform with more certainty his monotonous revolution. Alas! it is easy to see, by his meagre flanks and melancholy aspect, that the starved steed is already oppressed with the presentiment that his present position is but the antechamber to Montfaucon and the knacker's yard!

The toil of his long days and wakeful nights procures him but a scanty remuneration. In vain he practises economy to the verge of avarice; in vain he sells his miserable horse at the approach of winter, to buy another in the spring; in vain he lives upon vegetable food, to avoid the expense of butcher-meat; it rarely happens that he can amass sufficient to provide for the necessities of old age, but continues in harness, so to speak, to the last, watering and weeding to the day of his death; and dies at length, pitcher in hand, and, like the Emperor Vespasian, on his legs. Perhaps he had dreamed of a retreat from toil; perhaps he had often yearned after a shelter, like that so ardently desired by Rousseau—a white cottage with green shutters; but it is seldom more than a dream. Outworn and broken down with fatigue, the marsh-gardener, for the most part, dies on the field of his labours, and rests but in the grave.

The wife of the marsh-gardener, his sons and daughters, dig, sow, and cultivate the ground in company with him. The only alien auxiliaries that they admit, are the soldiers of the garrison of Paris, whom they hire at three-halfpence an hour, during the great heats of summer. On this subject we offer the reader a curious and authentic anecdote.

It was on the 14th Thermidor, in the year 5; or, on Thursday the 1st of August 1797. Some detachments of the army of the Sambre and Meuse, sent for to Paris by the Executive Directory, came to manœuvre in the enclosure of Saint Lazare. The general had alighted from his horse, and was walking with some officers, when at the end of the Faubourg Poissonnière, he stopped at the gate of a marsh-garden. Without troubling himself at the presence of so dignified a personage, the cultivator, an old philosopher, continued drawing his water.

'Good-day, Father Cardin,' cried the general.

'What! you know me?' said the old fellow amazed, respectfully baring his white head.

'To be sure old friend, ever since '87. I was then but nineteen. I served in the regiment of the French Guards, of which Marshal Biron was then colonel; and was quartered at the barrier Poissonnière. Have you forgotten me?'

'Faith I have then. Let me recollect: there were then at the barracks two companies of fusiliers, and one of grenadiers: to which did you belong?'

'To the grenadiers: you used to employ many of them occasionally to assist in watering your garden. Do you recollect, amongst others, the son of the kennel-warden at Versailles?'

'Stop a bit! Was he not recommended to me by his aunt, a fruit-seller at the same place?'

'Precisely.'

'Hadh't he the trick of buying books with the money I paid him, and paying another man to mount guard for him, that he might have time to study them?'

'Your memory is returning, Father Cardin.'

'He used to warble like a nightingale; I recollect he told me one day, that when a child, he used to sing in the choir at Saint-Germain-en-Laye. Ah, I remember him well now! What is become of him?'

'He is become general-in-chief of the army of the Sambre and Meuse; I am the self-same man, old comrade.*'



Epilenrum cucullatum.

EPIDENDRUM CUCULLATUM.—HOODED EPIDENDRUM.

CLASS XX. GYNANDRIA.—ORDER II. DIANDRIA.

NATURAL ORDER, ORCHIDÆ.—THE ORCHIS TRIBE.

THIS very curious species of *Epidendrum*, which we believed flowered for the first time in this country* in the bark stove of Edward Woodford, Esq., Vauxhall, rises with a single stem, clothed with two or three alternate ash-coloured scale-like spathes, so closely adpressed as to be scarcely discernible. From the top of the stem issues one leaf (perhaps, as in the figure of Plumier, sometimes more) fleshy, linear, acute, convex at the back, and slightly grooved in front. From the bosom of this leaf rises a round scape, at first swelling, then attenuated upwards, bearing a solitary flower, perfectly white when newly opened, but becoming tinged with a yellowish green, consisting of three external and two internal petals, of similar length and shape, linear, somewhat undulated, the two inner ones exactly opposite, and a nectary surrounding the parts of fructification shaped like a friar's cowl, far-acuminate, fringed, continuing of a snow-white after the petals have changed their tint. Nearly scentless.

Being a native of the West Indies, and naturally a parasitical plant, its culture is difficult, and it is of necessity a constant inhabitant of the bark stove in our climate.

GARDENS.—The word suggests a summer theme, but, like gardening, it has a portion for all seasons, and an interest for almost every mind; few there are who cannot find pleasure in the exercise of that primitive art; and those few, generally speaking, will be found themselves uncultivated within. The love of gardens is a feeling at once the most universal in its extent and the most salutary in its operation, of any that has been retained by modern society; it belongs to the primeval times, and keeps the freshness of old rustic nature about human hearts and homes through ages of dusty toil and mechanical civilisation. We cannot conceal from ourselves that much of life as it now appears has the artificial stamp upon it; our daily business, our habits of action and even of thought, our social arrangements, and our domestic manners, all bear the impress of machinery and making up: they were made up for us, in fact, before we knew them, or so much as entered this living world. But the roses that summer flushes so brightly in the rich parterre, the woodbine that blooms on the cottager's garden wall, or the bed of snowdrops that delights the cottage child, when the days are lengthening and the robin begins to sing—these are the forms renewed that come and go with the seasons, and are nursed beyond human comprehension or control.

The fields are far off to the inhabitants of cities, and those of the country know them to be the meadows or harvest ground that must be reaped and sown, the domains of utility tilled by laborious strength: beautiful are they in the first green of the corn, and rich when it waves wide and yellow in the autumn's sun and breeze. The trust, the life of the world are there; but the garden is the cultivator's own demesne, to which his leisure is given where his taste finds scope, and over whose wealth he rejoices as that which comes without either risk or misgiving; hence from the earliest date of history and civilisation men have delighted in gardening—the sage and the simple have found it equally attractive. It has been the amusement of princes, poets, and philosophers; minds of the highest order, in both ancient and modern times, have made it their chosen study, and unlettered hard-working men, in the rough by-ways of life, have selected it for their only relaxation. He was a curious, though not unphilosophic observer, who remarked, that wherever taste and care were exhibited in the garden, whether pertaining to cottage or castle, the traveller might fairly reckon on civility and refinement in the household. Gardens are entirely unthought of by savage tribes. Those of them who plant roots or sow grain have no idea of the small enclosure for mingled ornament and use which is generally understood by that term among us. The garden occupies a large space in most people's home recollections: all whose childhood has been passed in the country will remember some little spot in which their earliest attempts at planting were made—how often the first roots were pulled up to see if they were growing; and when at length sounder principles of horticulture were acquired by the expanding mind, with what cheerful and earnest industry were the weeds removed, the flowers trimmed, and, more than all, the requisite duties done to that first estate—better kept perhaps than the patrimony or the acquisitions of after life; and when it grew to prosperity and bloom, under shower and shine, and hopeful labour, oh how great was the triumph, and how rich seemed the reward.

The fathers of the church were in the habit of comparing the soul to a garden; probably the monastic custom made the simile familiar to their minds. 'Cultivate thy soul,' says one, 'as thou wouldst thy garden ground; root out the weeds year after year, for the seasons will renew them; cherish the flowers, and see that thou bestow most care on that which is most likely to fail.' Gardens figure conspicuously in the mythology of all nations living under a warm or temperate climate. The Mohammedan paradise is represented under that symbol. The Chinese speak of the gardens of the immortals, which are said to be situated among the mountains of Thibet, and blest with perpetual summer: nothing within their

* It was in the royal collection at Kew in 1794. *Mart. Mill, Dict.*

bounds can die or grow old, and several ancient sages are believed to have retired to dwell among their bowers; but for centuries mankind have lost the way, and no traveller has ever succeeded in finding it, though the Chinese poets celebrate many who made the attempt; but few of them returned to their homes, and those who did so, could rest no more. There is a wild tradition among the Arabs concerning the gardens of the desert, which are believed to have been formed by an ancient tyrannical king at enormous expense and labour. They say that he had conquered all the nations of the East, and boasted he would conquer the sands also; but having at length completed his design, of which the Arabic legend retains a dazzling description, the gardens suddenly became invisible in the pomp of their richest bloom, and neither the monarch nor any of his successors ever again beheld them; but bewildered travellers have caught glimpses of them at times through the falling twilight, and given splendid though vague accounts of their gorgeous trees and flowers. The Hindoos believe that the widow who consumes herself with the corpse of her husband will expiate the sins committed by him and all her relations, and dwell with them in a magnificent garden for ten thousand lacs of years. In the legends of the north gardens have no place; the Scandinavian and Icelandic traditions speak only of halls and forests; and the old superstitions of Russia bear the same character. In those lands of pines and snow, gardens must have been unknown in earlier times, but civilization has brought them in its train. The Norwegian cottager now cultivates a garden of his own, fenced round with firs, furnished with peas and turnips; and if the owner be tasteful, perhaps a bed of daffodils, or yellow crowsfoot, varied with the foxglove and a rose bush or two; for it is remarkable that some variety of the rose is to be found in almost every climate south of Greenland. The Royal Garden at Stockholm contains one of the best collections of plants now in Europe; and it is well known that more pine-apples are produced in the neighbourhood of Petersburg, in spite of its nine months' winter, than in that of any other capital in Christendom.

About the close of the seventeenth century, a mode of gardening was invented by Le Notre in France, which was soon adopted over all Europe, and of which the gardens of Versailles present the best specimen. The chief characteristic of Le Notre's style was excessive regularity—trees were cut into fantastic shapes, beds were squared, walks and hedges were made straight by rule and line: if water was introduced, it was as a formal *jet-d'eau*, or a pond resembling a canal; where the ground sloped, it was laid out in a succession of terraces; and at every available point there was stuck the figure of a heathen god or goddess. While this stiff style ran its course on the continent, it was ridiculed by Addison in England, and gave place to a modified system of gardening, in which artificial wildernesses were interspersed with all sorts of oddities. A writer on gardens of this new style of art thus describes their appearance:—'What in nature is dispersed over thousands of miles, was huddled together on a small spot of a few acres square; urns, tombs; Chinese, Turkish, and Hindoo temples; bridges which could not be passed without risk; damp grottos, moist walks, noisome pools which were meant to represent lakes; houses, huts, castles, convents, hermitages, ruins, decaying trees, heaps of stones—a pattern-card of everything strange, from all nations under heaven, was exhibited in such a garden. Stables took the place of palaces, kennels of Gothic temples, and this was called natural.' Pope, at Twickenham, had a garden of this character, which was adopted as a model.

Perhaps the natural taste for gardening was never more strikingly exemplified than in the case of Saabye, a Danish missionary, who, with his wife, resided many years on the coast of Greenland. The missionary's house was surrounded by high rocks, which partially sheltered it from the fury of the northern storms and sea; but the mould on the stony soil in its vicinity was not deep enough for any root, and Saabye and his wife were obliged to transport the requisite additions from a considerable distance in a tub, having no other utensil suitable for the service. Thus the first garden in Greenland was formed; and the missionary planted it after the manner of cottage gardens in Denmark, with seeds sent him by the ship that came annually at midsummer. The results of his gardening experience in the polar regions are curious. It was not till the beginning of July that the frost of the long winter was sufficiently thawed to commence operations; there was then a summer of two months' duration and continual day, the vegetation being proportionally rapid; cabbages flourished remarkably well, turnips grew to the size of a teacup, lost their bitter taste, and acquired an agreeable sweetness; but Saabye's carrots were never larger than the stalk of a tobacco pipe. Celery and broad beans would not grow at all; peas ran into bloom but did not set: and the missionary seems to have regarded these as the only flowers of his garden. Yet in that dreary and remote solitude, surrounded by the natives of the north, whose language they were years in acquiring, the devoted exiles found pleasant occupation and familiar memories of their far old home in the spot so hardly redeemed from sterility, and yielding at the best such scanty returns for their labour. Nor can the subject be wound up without recalling the observations of Lord Bacon in his essay on gardening:—'God Almighty first planted a garden; and indeed it is the purest of human pleasures; it is the greatest refreshment to the spirits of man, without which buildings and palaces are but gross handiwork; and a man shall ever see that when ages grow to civility and elegance, men come to build stately, sooner than to garden finely, as if gardening were the greater perfection.' Yes, gardens are clearly significant of elegance. He cannot be a bad man who loves either flowers or gardens.



Magnolia Purpurea.

MAGNOLIA PURPUREA.—PURPLE MAGNOLIA.

CLASS XIII. POLYANDRIA.—ORDER VII. POLYGYNIA.

NATURAL ORDER, MAGNOLIACEÆ.—THE MAGNOLIA TRIBE.

MAGNOLIA, so named by Plumier in honour of Pierre Magnol, Professor of Medicine and Prefect of the Botanic Garden at Montpellier.

GENERIC CHARACTER.—*Cal.* Perianth three-leaved ; leaflets ovate, concave, petal-shaped, deciduous. *Cor.* Petals nine, oblong, concave, blunt, narrower at the base. *Stam.* Filaments numerous, short, acuminate, compressed, inserted into the common receptacle of the pistils below the germs. Anthers linear, fastened on each side to the margin of the filaments. *Pist.* Germs numerous, ovate-oblong, two celled covering a club-shaped receptacle. Styles recurved, contorted, very short. Stigmas villose, perpendicular with the style. *Per.* strobile ovate, covered with capsules, which are compressed, roundish, scarcely imbricate, clustered, acute, one-celled, two-valved, sessile, opening outwards, permanent. *Seeds* two or one, roundish, berried, hanging by a thread from the sinus of each scale of the strobile.

Flowers six-petalled, the exterior of the petals purple.

Branches long and somewhat pliant ; the bark of the young shoots smooth, shining, of a bright green, and with small white spots. The flowers at the extremity of the young shoots, solitary ; petals six, ovate, concave, narrowing towards the base, the exterior of which are of a lively purple, the interior whitish. Calyx of two or three dark brown concave leaflets, which are deciduous. Leaves ovate, entire, of a bright green, and much veined. Stamens and pistils seated upon a conical receptacle, which afterwards supports the pericarp composed of numerous cells placed in an imbricated form, each of which contains one or two small ovate or roundish seeds.

The grandeur and magnificence of this tribe of shrubs mark them as truly conspicuous objects in the pleasure-ground. Amongst them are found all the qualifications for decorative shrubs ;—a grand and ornamental style of growth, bold and conspicuous foliage, with flowers of corresponding magnificence, possessing a most delightful and fragrant odour. The *M. Grandiflora*, though it deservedly ranks as the most princely shrub in our gardens, yet surpasses by little only the present species. The hardihood of the *M. purpurea* makes it well adapted to this country, and its free disposition to flower renders it peculiarly ornamental. It is generally cultivated against a wall or trellis, but will flourish in the open ground, although its flowers in such a situation are not so luxuriant and numerous. It is found to flourish in a soil composed of peat and loam, and is increased by layers, which should be put down in a portion of sand towards the end of March. It is a native of China, and was introduced in 1792.

“Until of late,” says a Naturalist, “it has been the universal opinion that indications of vegetable instinct must be denied to vegetables ; but with progressive discovery, and of the several facts about to be related, this belief is giving way to what seems a perfectly allowable deduction from these facts—an opinion of precisely the opposite character, however startling it may appear to many who have hitherto regarded plants as only a grade above the inorganic kingdom. A short consideration of the subject, in the following manner, may prepare the way for the admission ; and we believe few who will discuss the question, will leave it with a doubt upon the mind. If the evidence can scarcely be considered as conclusive, it is at all events of such a remarkable, plain-speaking character, as to call for a certain amount of credence and attention.

“It is scarcely necessary to remind the reader, that at what may be called the confines of the zoological kingdom, there exist certain simple forms of animalcules, in which no nerves are, by our present instruments, to be discerned ; but we can hardly conceive these creatures to be destitute of them, when we find that they execute movements of a character bearing the most precise analogy to those of higher orders of created beings. Thus they chase their prey through the water ; in turn they themselves flee from their enemies : they possess the liveliest powers of locomotion, at the complete control of the creature ; are endowed with the power of digestion, and of the perception and discrimination of their appropriate nutriment ; which are all functions in nobler creations, dependent upon the existence, if not of centres of sensation, at any rate of nervous fibres. It is easy, therefore, to believe that in their case nerves, and a stimuable tissue not necessarily identical with ordinary nerves and muscles, do exist, but are imperceptible, owing to our defective and limited powers of investigation. But when these analogical inferences are developed to a point yet further, when they are made to embrace confervæ, the humblest of vegetable forms, a difficulty arises in the admission of the existence of nerves or muscles, for which no other cause can be adduced than that, in the more complex structures of the same kingdom, such an apparatus is not to be found ; physiologists hesitating to admit the existence of other excitable tissues than animal muscle, and of other stimulus-conveying fibres

than animal nerves. An assumption like this is not absolutely necessary. It is impossible to say that certain vegetable organs and tissues only discharge one function; it is perfectly conceivable that they may be endowed with two or more, abstractedly. Who, for example, could witness an oscillatorial filament wriggle itself out of a plate, and move towards the light with an invincible pertinacity, and could feel a doubt that it possessed the instinct that light was good for it; in obedience to which impulse, it was using every effort in its power to reach it? Place by its side a humble animalcule, which, with movements of equal vivacity, dances hither and thither in its native element, and let science put her finger upon the point where sensation ceases on the one side, and some new faculty commences on the other.

"Here are plants folding close their delicate organs from the cold evening air, expanding them again to their genial sunbeam; here are plants shrinking from the drenching rain, or opening to welcome the refreshing shower, as their different constitutions may suggest; here are some casting forcibly off every intruder to the honey cell; here are others, on the contrary, spreading their leafy traps for the capture of such offenders, here are a few abashed and shrinking from the touch; and finally, were St. Vitus's Dance a vegetable mad-lady too, here is one—the *Desmodium gyrens*—which is decidedly a victim to it.

"Leaving, however, the discussion to another and more befitting arena, we would proceed to indicate that, putting aside the question of the amount of sensation involved in the motions referred to, there are other and even more remarkable points of view from which to contemplate the subject.

"There is a class of poisons which may be shewn to operate purely upon the sensation of animals, causing no chemical or physical disorganisation of their structure; these are opium, belladonna, Prussic acid, nux vomica, tobacco, &c. If now, it can be shewn that these agents act in a deleterious manner upon plants, we have the presumptive evidence of strong analogy in support of the idea of vegetable sensation. M. Marcet has set the question at rest. From his experience it has been found that, even in minute quantities, the poisons specified are destructive to vegetable life. If a leaf of the sensitive plant is cut off, and placed in pure water, it curls up its leaflets, but in a short time they again expand, and retain their irritability for several days, expanding and shrinking up as on the plant itself, when untouched with the finger or with a needle; but if another leaf is cut off, and placed upon water, to which a solution of belladonna has been added, the leaflets collapse, and subsequently expand; but after this it seems paralysed—its life is extinct, and even if it is then put into pure water, it no longer can be made to contract. Electricity, extreme cold, mineral poisons, arsenic, &c. are productive of similar consequences. Every one is familiar with that simple experimental, the fumigation of a rose-tree, to destroy the insects which infest it. It affords us an instance of the action of a narcotic poison not only upon the insects, but also upon the plant itself. The little creatures tumble from the branches, stupified with the tobacco fumes. And at the same time it may be observed that the leaves of the rose droop, some of its youngest and tenderest branches hanging down, and only recovering, after exposure to a purer atmosphere, their former position and healthy aspect. The effect of these poisons obviously indicates that all plants possess an occult principle, having a certain analogy to sensation. It is found, also, that when certain chemical substances in solution are presented to their roots, the foreign matter is carried into the circulating system of the plant, but is almost invariably, if it is unsuitable for its nutrition or for the formation of its secretions, carried down again, and thrown off by the roots. Even in the selection of its proper food by the delicate spongiolæ of the root, it would seem as if some kind of discerning faculty were in operation, which at any rate may be compared to animal instinct.

The struggle which plants growing in a cellar or darkened room make towards the light, however small the glimmer which may pierce the darkness, and the sedulous manner in which the radicle and plumule of the germ respectively avoid and seek the same influence, seem to speak in similar language. Every one who has watched the growth of the tendril of the vine, or the stem of the creeping-plant, must have observed that neither make any turns until they come into contact with some object around which they can twine; so that, up to a certain point, the stem of the most inveterately-twisting plant remains as straight as possible; but at the point of contact with another body, a volution immediately commences, and thenceforward it proceeds in a spiral direction around the object held in its embrace. In the case of the briony, simple contact with the object is not sufficient to cause the twisting of the stem. To prove this, the experiment of tying it with a string at a certain point has been made; but the plant made no attempt to twist at that point. A small weight was then attached to the string, and the tendril immediately began to shorten itself by making several spiral turns. This seems to indicate that the tendril of the briony, naturally, will twist only when it has the weight of the stem to support. The writer who records this experiment, and whose striking phraseology is almost indicative of his name, adds, 'it is a hand seeking in the dark, and grasping what it has felt by the action of muscles remote from the sensible point.'

"The remarkable manner in which plants search for their food, within certain limits comparable to that of animals, appears to imply the existence of some higher impulse than mere fortuity. The strawberry plant will thrust its 'runners' completely across a garden walk, on to a bed of soil on the opposite side, where it will for the first time, as it were, perceiving its object to be gained, push out roots, and form a new plant. It is not uncommon to find travellers relating the most singular freaks played by trees and plants in quest of nutriment. Trees are sometimes found which have taken root on one side of a deep ravine, and having exhausted the sterile soil on that side, have pushed forth roots completely across the abyss, which have gained its opposite side, and there struck deep into more fertile ground. Plants are often to be found which have rooted in old walls; but soon experiencing the want of soil, extend long roots in the direction of the ground, which they penetrate, and then form radicles. If the roots of a plant are accidentally denuded, and there happens to be some moist substance, as wet moss, in their neighbourhood, they direct themselves towards it, and eventually succeed in reaching it."



Bytius Laburnum.

CYTISUS LABURNUM.—COMMON LABURNUM.

CLASS XVII. DIADELPHIA.—ORDER III. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

LABURNUM, (a name formed from the Alpine name of the tree L'Aubours.) Calyx campanulate. Legume many-seeded, not dilated at the upper suture. Flowers yellow. Branches unarmed, leafy. Branches terete, whitish: leaves petiolate: leaflets ovate-lanceolate, pubescent beneath: racemes pendulous, simple: pedicels and calyxes clothed with adpressed pubescence: legume linear, many-seeded, clothed with adpressed pubescence. Native of Europe, frequent on the lower mountains. The laburnum, often called golden blossoms by country people, is a tree dear to the child at school, because its pendant clusters unfold just before the Midsummer vacation, and whose opening buds have erewhile made the young hearts within us beat with joy and hope.

"The Laburnum is a large growing tree, and although," says Gilpin in his Forest Scenery, "we have not frequently seen it assume that character which would make its form an object of desire for the artist, yet its rich leguminous golden flowers give it great value for the pleasure ground. It is, moreover, a hardy tree, and we can answer, from our own experience, that the timber, when made into chairs and other pieces of furniture, and allowed to darken, is sometimes hardly distinguishable from rosewood. If not allowed to get dark, the outer wood remains of a delicate yellow; the heart wood is always of a deep hue. It is extremely hard, and so heavy, that it will sink in water; and the French, who make great use of it, call it the Ebony of the Alps, because it is a native of the valleys of these mountains. The timber of this tree is indeed the highest in price of any that grows in Britain. A considerable quantity of laburnum was sold by public sale at Brechin Castle and Panmure, in 1809, at fully half a guinea per foot. The tree is very abundant in that neighbourhood, the roads being often bordered with it. There is a shrub variety of the laburnum, which, in its department is no less beautiful. The true sort is easily distinguished from the shrub by the greater size of the leaves, and the superior length of the bunches of papilionaceous flowers.

A laburnum, which was cut at Greenlaw in Edinburghshire, in the year 1763, measured four feet six inches in girth, and furnished a plank of beautiful red wood fourteen inches broad. It was planted in the end of the seventeenth century, when laburnum trees were first introduced into Scotland. We are persuaded that many much larger laburnums now exist in the country.

The shrubby stems of *C. Scoparius* are sought after, on account of their beauty when cut into veneers. Goats are fond of browsing on the herbaceous twigs of this plant, which is believed to be the flowering *Cytisus* of Virgil; and its branches, when young and tender, are often used in this country as well as in Italy, as fodder, and sometimes substituted, on account of their bitterness, for hops in brewing. They are also said to be capable of tanning leather, and of being made into a coarse kind of cloth. In our provinces, the older plants are frequently employed as thatching for cottages, sheds, and ricks. The seeds have a very bitter taste, and, as well as a decoction of the young twigs, called "broom-tops," are esteemed as a diuretic. When burned they afford a considerable quantity of vegetable alkali, upon which their medicinal properties chiefly depend; but their bitterness is also, in dropsical habits, where strength is in general greatly reduced, a further recommendation.

The seeds of the common *Laburnum* (*C. Laburnum*), were observed by Haller to be violently emetic and cathartic; but they are now known to be absolutely poisonous. Several serious cases have occurred, both in this country and in France, from children swallowing laburnum flowers and seeds.

Professor Taylor (in his work on Poisons, p. 759) tells us that "Dr. Traill met with two cases of poisoning by the seeds, and an interesting case, which was the subject of a trial at Inverness, has been more recently reported by Dr. Christison. (Ed. Med. and S. J. Oct. 1843.) A youth, with the intention of merely producing vomiting in one of his fellow-servants, a female, put some dry laburnum-bark into the broth which was being prepared for their dinner. The cook, who remarked a "strong peculiar taste" in the broth, soon became very ill, and in five minutes was attacked with violent vomiting. The account of the symptoms is imperfect; for the cause of them was not even suspected until six months afterwards. The vomiting continued thirty-six hours; was accompanied by shivering,—pain in the abdomen, especially in the stomach,—and great feebleness, with severe purging. These symptoms continued, more or less, for a period of eight months; and she fell off in flesh and strength. At this period she was seen by a physician, who had been called on by the law authorities to investigate the case. She was then suffering from gastro-intestinal irritation, vomiting after food, pain in the abdomen, increased by pressure, diarrhoea, tenesmus, &c., with other serious symptoms. The medical opinion was that she was then in a highly dangerous

state. The woman did not eventually recover until the following April. There was no doubt, from the investigation made by Dr. Ross and Dr. Christison, that her protracted illness was really due to the effects of the laburnum-bark.

"Some experiments were then made on the action of the poison on animals. A teaspoonful of the powder of dry laburnum-bark was administered to a cat. Soon afterwards it writhed, apparently in great pain; in a short time it vomited violently, and, although languid and dejected for the rest of the day, it quickly recovered. Sixty-nine grains of the same powder were given to a dog. In ten minutes it whined and moaned, vomited violently, and soon got well. On a second occasion, twenty grains were found to act as a powerful emetic upon the animal. An ounce of the infusion of laburnum-bark, containing the active matter of sixty-two grains, was introduced by a catheter into the stomach of a full-grown rabbit. In ten minutes the animal looked quickly from one side to the other, twitched back its head twice or thrice, and instantly fell on its side in violent tetanic convulsions, with alternating emprostotonos and opisthotonos, so energetic, that its body bounded with great force upon the side, up and down the room. Suddenly, however, all movement ceased, respiration was at an end, the whole of the muscles became quite flaccid, no sign of sensation could be elicited, and the animal died within *two minutes and a half* after the poison was injected into the stomach. The body was opened in two minutes more, and the heart was found gorged with blood, but contracting with some force. The stomach was filled with green pulp, soaked with the infusion. No morbid appearance was visible anywhere. In repeating this experiment, one rabbit died in half an hour, another in three quarters of an hour, after small doses of the infusion were injected into the stomach; and a third rabbit speedily died after eating greens merely impregnated with the infusion. In all these instances convulsions were the leading symptoms produced. The same effects are popularly ascribed to the leaves, young pods, and seeds of the tree; but no experiments have been performed with these. The facts here detailed show that laburnum-bark is a most energetic poison—as powerful, even, as nux vomica.

"ANALYSIS.—There are no chemical means of detecting the nature of this poison, especially when administered in powder or infusion; or when a decoction of the bark is given in food. A decoction of the bark yielded a clear light brown infusion with a slight acid reaction. It was not precipitated by albumen, or a solution of tartarized antimony; hence it contained no tannic acid. With a persalt of iron it acquired a dark greenish-brown colour,—of a deep red by transmitted light. Strong nitric acid caused it to acquire a lighter colour. It gave a very copious gelatinous precipitate with acetate of lead, which was almost entirely re-dissolved by acetic acid. On decomposing this precipitate by sulphuric acid, filtering and applying a persalt of iron to the filtered liquid, a greenish-brown precipitate fell (gallate of iron) without any red tint whatever. A much stronger decoction of the bark, as well as a decoction of the tops, yielded similar results.

"The bark has been said to contain meconic acid; but these results prove that none of this peculiar acid is present. The only plan for determining with certainty the deleterious properties of the substance, would be by exhibiting a portion of the suspected decoction or infusion to animals.

"It has been recently announced that meconic acid is actually contained in the bark of the common laburnum tree, and that the iron-test strikes, with a decoction or infusion of this bark, a deep red colour, characteristic of meconic acid. The writer has further asserted that in testing for meconic acid, laburnum and laudanum would give precisely similar results. The improbability of laburnum bark or its decoction being found in the stomach, unless it had been intentionally administered as a poison, would be sufficient to take away the practical force of this objection, admitting it to be valid.

"Laburnum is a most powerful poison, and destroys life under symptoms widely different from those produced by opium; but the result of many experiments with the concentrated and diluted decoction and infusion of the bark procured in the metropolis as well as at a distance in the country, is that I have not been able to detect in it the slightest trace of meconic acid, or of any acid that could possibly be mistaken for it. The iron-test gives at first a deep reddish colour when added to the decoction, but this colour speedily changes to a dingy greenish-brown, instead of remaining of a clear red like the meconate of iron. It is quite certain that a person used to the analysis of opium could not mistake this chemical change for that produced by meconic acid. As tannic acid gives no precipitate with the decoction, the effect is probably due to gallic acid combined or mixed with organic matter. The clear liquid obtained from a decomposition (by sulphuric acid) of the precipitate formed in the decoction by a salt of lead, did not acquire any red colour upon the addition of the iron-test.

The deleterious properties of this plant (says Professor Burnett,) depend upon a peculiar proximate principle, discovered by MM. Chevalier and Lassaigne, and called by them Cytisine; small doses of it, when given to various animals, produce vomiting, convulsions, and death. The same principle, or a very similar one, appears to be present in the flowers of *Arnica montana*, (the Leopard's bane;) and in *Asarum Europæum*, (the *Asarabacca*.) Notwithstanding the poisonous quality of the seeds, and the purgative effects of the young shoots, the latter form a very favourite food with hares and rabbits, who, it is said, will touch no other plant while a twig of laburnum remains; and hence it is frequently sown in plantations to protect young trees, until they are large enough to resist all leporine assaults.



Aloe vulgaris.

ALOE VULGARIS.—YELLOW-FLOWERED ALOE.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ASPHODELEÆ.—THE ASPHODEL TRIBE.

Fig. (a) represents a flower with its bractea; (b) the pistil with the base of the corolla; (c) the same with the corolla removed.

THE derivation of this name is uncertain. Beginning with the syllable *Al*, it is, perhaps, of Arabian origin; especially as the plant is much venerated in the East. In the Hebrew, a cognate language, it is called *ahalah*: some derive Aloes from the Greek *als* [the sea]; others from the Latin, *adolendo*; but this can only refer to the Aloe-wood, which is used in sacrifices for its fragrance. On the whole it is probable the name was first applied to the aloe-wood, and hence transferred to the common Aloes, on account of their bitterness. Its medicinal virtues were made known to us by Dioscorides, the physician of Cleopatra; and it is also mentioned by Plutarch. The name Aloe is retained by all the European nations.

From the specimens we are in the habit of seeing in this country, we should be inclined to think that the utility of the Aloe far surpassed its beauty, and to rank it, as a vegetable, with the camel and elephant in animal life. Like the larger animals, it is confined to hot, or comparatively uncivilised countries. Its appearance, which resembles a collection of huge leathern claws, armed with prickles, is very formidable; and even the smaller species have a sort of monstrosity of size in their parts, though small as whole. But notwithstanding the extraordinary utility of the Aloe, those who have seen it in its native country, and in full flower, describe it as scarcely less remarkable for elegance and beauty. The larger and more useful kinds appear to be also the most beautiful.

"Nature seems to have treated the Africans and Asiatics as barbarians," says St. Pierre, in speaking of the Aloe, "in having given them these at once magnificent, yet monstrous vegetables; and to have dealt with us as beings capable of sensibility and society. Oh, when shall I breathe the perfume of the honey-suckle?—again repose myself upon a carpet of milk-weed, saffron, and blue-bells, the food of our lowing herds? and once more hear Aurora welcomed with the songs of the labourer, blessed with freedom and content?"

The Aloe *vulgaris*, which is the species that Sloane describes in his History of Jamaica, as producing the Barbadoes extract, is a native of the Levant and Barbary. Though generally known under the name of Barbadoes Aloe, it is said not to be very common in the West Indian islands, where the plants are propagated on the poorest soil for the purpose of obtaining the Hepatic aloes of the shops. It is the *αλονη* of the ancient Greeks, and was found by Dr. Sibthorpe growing spontaneously in the island of Cyprus.

The stem is short, thick, shrubby, branched, and, like the rest of the plant, abounding in a clammy, bitter, fetid, yellowish juice. The leaves are about four inches broad at their base, crowded, sessile, nearly erect, or somewhat spreading, a foot long, lanceolate, acute, fleshy, smooth, succulent, concave above, of a sea-green colour, and when young spotted with white. The flower stem rises about three feet in height; it is round, thick, erect, smooth, of a brownish purple colour, branched at top, and terminated by the flowers which form a slender, loose pike, and are of a bright yellow colour. The flowers are numerous, spreading horizontally in an elegant spike, and stand on short, smooth footstalks, each flower being accompanied by a single bractea. The bracteas attached to the flower stems are triangular, membranaceous, and of a deep brown colour. The perianth is hexapetaloid, the pieces connate, the tube long, the limb deeply 6-cleft, cylindrical, and oblong; the outer segments are larger than the inner, ovate, blunt and spreading at the border. The stamens are thread-shaped, as long as the corolla, or longer, exserted from the receptacle, and furnished with oblong, incumbent anthers. The germen is oblong-ovate, angular, bearing a style nearly of the length and shape of the stamens, with a small, simple stigma. This species and *A. stricta*, are the softest and most succulent of all the Aloes; the former is the only species whose flowers are yellow.

Lavaysse, in his 'Venezuela,' says, "The leaves of the different specimens of Aloe, are highly serviceable to the natives of the countries where they grow. The negroes in Senegal make excellent ropes of them which are not liable to rot in water; and of two kinds mentioned by Sir Hans Sloane, one is manufactured into fishing-lines, bow-strings, stockings, and hammocks; while the other has leaves, which, like those of the wild pine and the banana, hold rain-water, and thus afford a valuable refreshment to travellers in hot climates. The poor in Mexico derive almost every necessary of life from a species of Aloe. Besides making excellent hedges for their fields, its trunk serves instead of beams for the roofs of their houses, and its leaves supply the place of tiles. From these they obtain paper, thread, needles, clothing, shoes, stockings, and cordage; from the juice they make wine, honey, sugar, and vinegar.

Such of the Aloes as do not require a stove will bear the open air in our climate, from the end of March to the end of September. During the winter they should be watered about once a month; in the summer, when the weather is dry, once a week or ten days; but when there is much rain, they should be sheltered from it, or they will be apt to rot. If the weather be mild, they may be placed where they may receive the fresh air in day-time for a month after they are housed; after that the windows should be closed. They should not be put into large pots, but should be removed into fresh earth every year, which should be done in July. As much of the earth should be shaken away as possible, the roots opened with the fingers, and such as are decayed taken off; but great care must be taken not to break or wound those which are young and fresh. Water them gently when newly planted, place them in the shade for three weeks, and if the weather is hot and dry, water them in a similar manner once or twice a week. Most of the species may at this time be

increased by offsets, which should be planted in very small pots; and if, in taking off the suckers, you find them very moist where they are broken from the mother-root, they should lie in a dry shady place for a week before they are planted. When planted, treat them like the old plants. Such kinds as do not afford plenty of offsets may generally be propagated by taking off some of the under leaves, laying them to dry for ten days or a fortnight, and planting them, putting that part of the leaf which adhered to the old plant about an inch or an inch and a half into the earth. This should be done in June.

There are few things, I believe, more venerable, more eloquently impressive in their antiquity, than an old tree. The ruins of an old and noble edifice, of which every shattered fragment, every gaping cranny, complains of the destructive hand of time, is young and modern in our eyes, compared with that which still survives its touch,—the old ivy, that still, with every succeeding year, moves slowly on, knitting its creeping stalks into every crevice, and carrying its broad leaves up to the very summit. What can be more venerable than the far-spreading roots of an old elm or oak tree, veining the earth with wood! Cross but that little piece of wood, called the wilderness, leading from Hampstead towards North End, where the intermingled roots are visible at every step, casing the earth in impenetrable armour, and forming a natural pavement, apparently as old as time itself—can all the antiquities of Egypt command a greater reverence?

QUALITIES AND CHEMICAL PROPERTIES.—Barbadoes aloes is generally deeper coloured and more opaque than the Socotrine; it is more tough, and when broken, presents surfaces less shining; while its odour is very strong and highly offensive. Its colour when powdered is dirty yellow, and it is said to be more active than Socotrine aloes; and hence, though its price usually exceeds that of the other, it is principally employed in veterinary practice. It is composed of 42 parts of resin, 32 of extractive, the remainder consisting of a matter analogous to albumen.

Aloes, when pure, is completely soluble in water and alcohol; but the hepatic aloes only affords 86 parts of soluble matter to these menstrua. Aloes puffs up and crackles while burning, and gives out much thick smoke, that smells strongly of the aloes. When boiled in water and reduced to an extract, it loses much of its purgative property. It is stated by Murray, that the substance of the leaves does not partake of the qualities of the extract, which is contained only in vessels situate immediately under the epidermis; and this explains why it is that the inhabitants of Cochin-china are able to prepare a wholesome fecula from them. The aloes examined by Braconnot appeared to that chemist to have some particular qualities, which induced him to consider it as a distinct substance, for which he proposes the name "*amer resinoux*." Trommsdorf, on the other hand, and Bouillon La Grange, and Vogel, consider it as composed of resin, and a peculiar extractive matter. M. Fabroni, in the *Ann. de Chimie*, (vol. xxv.) states that he procured from the leaves of the *A. Socotrina* var. *angustifolia*, a violet dye, which resists the action of oxygen, acids, and alkalies. This juice, he says, produces a superb transparent colour, which is highly proper for works in miniature, and which, when dissolved in water, may serve, either cold or warm, for dyeing silk from the lightest to the darkest shades; and he reckons it one of the most durable colours known in nature. Aloes was used among the ancients, in embalming, to preserve bodies from putrefaction. Of this kind interpreters understand the aloes to have been, which Nicodemus brought to embalm the body of Christ. (John xix. 39.)

"This well known inspissated juice," says Professor Taylor, "of several varieties of plants, acts as a purgative in doses varying from five to twenty grains. When given in larger doses, or frequently repeated, it excites violent purging. It requires often many hours for its operation: it is less irritating than jalap or scammony, and it appears to act especially on the large intestines.

"Aloes, mixed with gamboge and colocynth, are said to be the basis of a certain quack medicine, sold under the name of Morison's Pills. These have proved fatal in many instances from the exhaustion produced by excessive purging, owing to the large quantity of these pills, taken in frequently-repeated doses. Our knowledge of the symptoms and post-mortem appearances produced by these irritants, is, indeed, chiefly derived from the cases which have proved fatal under this pernicious treatment. In the seventeenth volume of the *Medical Gazette*, will be found four cases of this description. The most prominent symptom was excessive diarrhoea, with the discharge of large quantities of mucus and blood; the individual became emaciated, and slowly sank from exhaustion. In some instances, the symptoms are those of inflammation and ulceration of the bowels. In 1836, a man was convicted of having caused the death of a person by the administration of these pills; in this instance the death of the deceased was clearly due to the medicine,—and on inspection, the stomach was found inflamed and ulcerated; the mucous membrane of the small intestines was injected and softened, and there was the appearance of effused lymph upon it. An ingenious attempt was made in the defence to draw a statement from the medical witness, that the good effects of some medicines invariably increased in proportion to the quantities taken!—this anti-homœopathic proposition was, however, very properly rejected. In all cases, it must be remembered, that these drastic purgatives may cause serious symptoms, or even death, when administered to young infants, or to persons debilitated by age or disease; nor is it necessary that the dose should be very large for fatal effects to follow. The medical question here may be, whether the medicine caused death directly, or whether it simply accelerated it. Hicrapiera appears to be a popular aloetic compound, and one death is recorded to have been produced by this in 1837-8. In another instance death was caused by an individual taking aloes in nitric acid, in which case the mineral acid was most probably the destructive agent. A singular case occurred in Germany a few years since, wherein a medico-legal question was raised respecting the poisonous properties of aloes. A woman, aged 43, not labouring under any apparent disease, swallowed *two drachms* of powdered aloes in coffee. Violent diarrhoea supervened, and she died the following morning, twelve hours after having taken the medicine. On inspection the stomach was found partially, and the small intestines extensively, inflamed. There were no other particular appearances to account for death, and this was referred to the effect of the aloes.

"This case appears to show that aloes possesses an irritant action. A large dose given to a person debilitated by disease, might easily cause death as the result of exhaustion from hypercatharsis."



Astragalus Verus.

ASTRAGALUS VERUS.—TRUE ASTRAGALUS.

CLASS XVII. DIADELPHIA.—ORDER III. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

THIS species of Astragalus is a native of the north of Persia, where it is called Kurn, flowering in July and August; we are indebted to Oliver for the discovery of this plant, which furnishes the Gum Tragacanth of commerce.

This is a low tree, seldom exceeding three feet in height; the stem is about an inch in diameter; the branches numerous and crowded together, and covered with imbricated spines and scales formed of the petioles of the preceding year; the leaves are pinnate, consisting of six or eight pairs of leaflets; the pinnæ are nearly opposite, villous, stiff, and pointed; the flowers are small and of a yellow colour, and arise from the axilla of the leaves; the calyx is divided at the brim into five pointed segments; the corolla is of the papilionaceous kind.

Tournefort tells us, that the naked hillocks of Mount Ida in Candia produce this plant abundantly. The gum exudes spontaneously towards the end of June and in the following months, during which period the nutritious juice of the plant, thickened by the summer heat, bursts most of the vessels in which it is confined. This juice coagulates in threads, which make their way into the pores of the bark, through which being pushed forward by fresh juice they issue forth, and are at length hardened in the air, either in irregular lumps, or in long vermicular pieces bent into a variety of shapes. The best sort is white and semi-transparent, dry, but somewhat soft to the touch. It is extremely different in many of its properties to gum arabic; one part of this diffused in one hundred parts of water affords a fluid of the same consistency as one part of gum arabic dissolved in ten parts of water. Water is, however, but an imperfect solvent to it, not forming the same intimate union with it as with other gums. When tragacanth is put into water it slowly imbibes a great quantity, swells into a large volume, and forms a soft but not fluid mucilage. On the addition of more water, and if the mixture be agitated, the gum will be more generally diffused throughout the liquor, which will appear turbid. If left at rest the mucilage will again separate and subside; the supernatant water appearing limpid, and holding only a very small portion of the gum.

This is more costly than gum arabic or senegal, but its employment is highly beneficial in topical dyeing, when the mordant is prepared with nitrous acid; since other gummy solutions are coagulated by the application of this active alterative.

In 1830 the quantity of tragacanth retained for home consumption was 29,725 lbs. It is admitted on a duty of 1s. per lb.; its price being from £16 to £18 per cwt.

SENSIBLE AND CHEMICAL PROPERTIES. Gum Tragacanth when good is inodorous, and as it dissolves in the mouth imparts a slight bitter taste: the best gum is semi-transparent, and of a clear whitish colour, and in small, thin, wrinkled, vermicular pieces or lumps; the larger lumps are of a yellowish colour, and more bitter to the taste. This gum differs from all other known gums, in giving a thick consistence to a much larger quantity of water, and at the same time being much more difficult of solution, or rather, dissolving only imperfectly, unless triturated after digestion with a larger portion of water; for although the liquor looks turbid, on standing the mucilage subsides, the water on the surface retaining little or none of the gum. If the water be acidulated with any of the mineral acids, a small portion of the gum becomes dissolved. Tragacanth is reduced to powder with much difficulty, unless thoroughly dried. According to Neumann, it gives nothing over in distillation, either to water or alcohol; it is also insoluble in alcohol or ether. The mucilage is precipitated by the sulphate of copper, superacetate of lead, and oxymuriate of tin; but not by silicated potass or the oxysulphate of iron: in these circumstances the mucilage of tragacanth differs from that of gum arabic.

Mr. Field, in his Treatise on Colours, says that, "Tragacanth is of excellent use when colours are required to lie flat, or not bear out with gloss, and also when a gelatinous texture of the vehicle is of use to preserve the touch of the pencil and prevent the flowing of some colours; or to fix drawings executed with the black-lead pencil."

MEDICAL PROPERTIES AND USES.—Gum tragacanth is demulcent, hence it is very useful for allaying tickling coughs and sheathing the fauces in catarrhal affections; and for these purposes (from its great viscosity) it is preferable to gum arabic: it is seldom given alone, being generally combined with more powerful medicines, more especially in the form of troches, for which purpose it is very well adapted. Tragacanth may be taken in powder, from ten grains to one drachm or more, in any suitable vehicle.

Off. The Gum.

Off. Pp. Mucilago Astragali Tragacanthæ, E. D.

Pulvis Tragacanthæ Compositum, L.

A superstitious veneration for particular flowers—in other words, flower-worship—is an ancient, and, in some respects, a poetical variety of the depraved systems of religious homage into which certain of the human family have fallen. It is to be traced ages back in the religious observances of the Hindoos, and among the more enlightened Chinese: it formed an important part of the mysteries of Egyptian idolatry; and it is remarkable that the past and present monuments of the Mexicans exhibit, and with great promi-

nence, the same feature; while at an earlier period than the present, certain flowers were regarded even by some Europeans with a degree of veneration only too closely approximating the more declared feeling of flower-worship. There is a love for these beautiful creations innate in the constitution of the human being, and participated in equally by civilised and savage men. Their exquisite attributes of painting and perfume address themselves directly to our more refined feelings, while they have a tendency to direct upwards to the God that made them: the grievous error lay in not stopping short before these feelings became idolatry. It will be easily conjectured that no temperate region was the parent of the superstition. It arose in those warmer latitudes where the vegetable world has been endowed with a vigour of growth, and gorgeousness of apparel, of which austerer climates are ignorant. Its aspect indeed is most imposing, and, to be fully realised, must be beheld. In the few exiles which pass an artificial existence in our stoves, we are supplied with some faint and feeble types of the vegetable glories of the tropics; and even these will produce an impression not soon effaced from any cultivated mind. But there, where the Indian, penetrating the hot, damp jungles of his forests, suddenly comes upon a great, glowing, wonderfully-formed and tinged orchid, squatting like some animated being upon a shaggy trunk, or where the Hindoo paddles across a blue lake, literally paved with lotus flowers, it is not a violent supposition that the spectacle will impress him with feelings akin to awe. The next step is not difficult to be foreseen. As flower-worship took its origin, so, alas! it retains its existence, only among the most ignorant of the human family.

Humboldt and Bonpland, in their splendid work on Equinoctial Plants, give an account of a very curious tree called by the Mexicans by the dreadful title of the *Macpalxochiquaukitl*!—which signifies *hand, flower, tree*. Its botanical title is almost as long, but is a trifle more euphonious—the *Cheirostemon platanoides*. There existed only one specimen of this sacred tree in all Mexico, at least to the knowledge of the Mexicans; and this circumstance, added to the really remarkable aspect of the flowers, appears to have won for it the veneration of the Indian population. From the centre of the flower there springs a columnar tube, which may be supposed to represent an arm and wrist; and this then breaks into five stamens, coloured blood-red, and disposed after a manner not very dissimilar to the arrangement of the fingers and thumb of the human hand. The very points of these vegetable fingers are curved, and somewhat resemble the formidable ungulated talons with which painters delight to ornament the hands of witches and demons. These parts of the flower are of a considerable size, and project in a menacing manner some distance above the petals. It may easily, therefore, be conceived that a high and noble-looking tree—for such it is—laden with flowers of such marvellous configuration, brandishing aloft, in fact, a thousand gory hands, was an object likely to excite in no ordinary degree the superstitions, and even the terrors, of the ignorant. The tree was worshipped by thousands; it was believed to be the only specimen in the world of its kind; and the opinion was common that any attempt to propagate it would prove abortive. A great number of seeds was procured by our travellers, planted, and watched over with the most sedulous care, but not one of them succeeded. So great, say they, was the veneration paid to it by the Indians, and so eagerly were the precious flowers thereof sought after, that they were frequently plucked long before their expansion; and the tree was consequently never suffered to ripen its fruit. In spite, however, of the firmest convictions of the indivisibility of this tree—the *Manitas*, as it is commonly called—it has been propagated by cuttings, some of which are at this moment thriving in some of the larger stoves of our modern collectors. In Lyon's 'Journal of a Residence in Mexico,' he mentions having seen this famous tree, and confirms all that has been above written concerning it, adding, that as if to make the resemblance to a hand complete, the points of the fingers are terminated by processes resembling claws! Whilst the resemblance to the human hand was recognised in this instance, it would have been most strange had the remarkable race of mimics—the orchids—escaped observation or veneration. These plants, which have no parallel in nature for singularity, beauty, and fragrance, and which, in some of their species, imitate the most wonderful diversity of objects, are held in high veneration by the Mexicans. The Queen of the Orchids especially is inestimably prized; and others receive a subordinate measure of respect. Those who have access to Mr. Bateman's splendid work on the Orchidaceæ of Mexico and Guatemala, will find there several interesting particulars relating to this subject. In other countries, orchids have been objects of veneration.

The famed lotus flower has a world-wide reputation for sanctity. The *Nelumbium* is a splendid water-flower, and is found floating in the pools and ditches of Asia, and in the Nile: it yields a nut which is supposed to be analogous with the sacred bean of the ancients. The flowers of both tribes are glorious objects—some are blue, white, yellow, rose-coloured; and they appear lovely in the extreme when resting on the bosom of the wave. The flower was worshipped alike in Egypt, taking a place in the mysteries of Isis and Osiris, as in India in those of Brahma. The sculptural remains of ancient Egypt abound with the sacred plant in every stage of its development, the flowers and fruit being represented with the utmost accuracy. Among the Hindoos it was considered an emblem of the world, and the flower was looked upon as the cradle of Brahma. It was used to decorate the temples of their idols, and laid as a most acceptable votive offering upon their altars. Sir George Staunton writes—'The Chinese always held this plant in such high value, that at length they regarded it as sacred. That character, however, has not limited it to useless or ornamental purposes. Their ponds, to the extent of many acres, are covered with it, and exhibit a very beautiful appearance when in flower.' When Sir William Jones was on one occasion at dinner on the borders of the Ganges, desiring to examine the sacred flower, he despatched some of his people to procure him a specimen; it was brought to him, and immediately all his Indian attendants fell on their faces and paid adoration to it.

Without multiplying examples, this may suffice to direct the reader's attention to an interesting, but, to every right mind, a sad and painful subject of thought.



Lopezia Racemosa.

LOPEZIA RACEMOSA.—MEXICAN LOPEZIA.

CLASS I. MONANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, CIRCÆACÆ.—THE ENCHANTER'S NIGHTSHADE TRIBE.

LOPEZIA named in honour of Thomas Lopez, a Spanish botanist, who is said to have directed his attention to the natural history of the New World.

Stalk five or six feet high, branched almost to the bottom, square, of a deep red colour, smooth towards the bottom, slightly hairy above: *Branches* like the stalk; leaves alternate, ovate, pointed, toothed on the edges, more so on the larger leaves, slightly beset with soft hairs, veins prominent on the under side, usually running parallel to each other and unbranched: *Leaf-stalks* hairy; flowers numerous, from the axæ of the leaves, growing irregularly on hairy leafy racemi, standing on long slender peduncles, which hang down as the seed-vessels are produced; Calyx: a *Perianthium* of four leaves sitting on the Germen, leaves narrow, concave, reddish, with green tips, the lowermost one widely separated from the others, and placed immediately under the nectary; Corolla four Petals of a pale red colour, forming in their mode of growth the upper half of a circle, the two uppermost linear, of a deeper colour near the apex, jointed below the middle, with a small green gland on each joint, standing on short round foot-stalks; Nectary situated below the Petals, perfectly white, somewhat ovate, the sides folding together, before the flower fully expands, nearly upright, embracing and containing within it the Pistillum and Stamen. Stamen *Filament* one, tapering and very slender just below the Anthera, arising from the same part as (and placed opposite to the base of) the Nectary, the lower part of it broader, somewhat fleshy, cartilaginous, and of the same nature as the inferior part of the Nectary, with a groove as that has on the inside, so that before the flower expands, the bases of each are like two half tubes, the sides of which, nearly touching each other, wholly enclose the Pistillum; Pistillum *Germen* below the Calyx, round, smooth, and green; *Style* filiform, white, length of the Filament; *Stigma* forming a small villous head.

Some plants have a claim on our attention for their utility, some for their beauty, and some for the singularity of their structure, and the wonderful nature of their economy; in the last class we must place the present plant, the flowers of which we recommend to the examination of such of our readers as may have an opportunity of seeing them; to the philosophic mind, not captivated with mere shew, they will afford a most delicious treat.

A VISIT TO A VEGETABLE GIANT.

This huge tree which spreads out its great branches over a large area of ground, formerly overshadowed the royal palace, and was the wonder of the whole city; and now, when palace and city are only constituents of the dust around it, the tree flourishes, and commands the admiration of the traveller, and the adoration of the majority of the Javanese nation. The place where it is found is now known as Batatulies. At its foot is a small wooden structure, where a few Mohammedan priests officiate, to whose care is committed the conservancy, of this monarch of the forest, and of some supplementary relics, upon the proceeds of the exhibition of which, and on the fees for the attendant religious ceremonies, they contrive to pick up a tolerable livelihood; for the tree is in an odour of sanctity beyond all other trees in the island. Wo and bad success to that miserable peasant who goes to market without paying his adorations and coin at the shrine of the giant tree! Besides this, the fame of the tree has spread far and wide, and many come to behold and wonder, who may pay the customary offerings without adoring the deity of the place. The subsidiary relics consist of some pieces of old Padjajaran tombstones, and a marvellous bit of rock, into which some Hercules of old is said to have set his foot. These are held in equal veneration with the great tree, and their worship is commingled with the services of the mighty vegetable idol which towers above them. The tree stands at no considerable distance from the wayside, and forms an imposing feature of a landscape, by no means deficient in grandeur. It is placed upon an elevated plain, and is conspicuous from all sides of it, and attracts the attention of every one even at some distance. So noble is its appearance, so majestic its port, that it has been said if once beheld, it cannot soon be forgotten. Coffee plantations crown the fields and the sides of the hills, offering a striking contrast of feebleness and colossal strength in the vegetable kingdom. Shining rivers, waving rice-fields, woods and mountains, with a fuming volcano in the distance, complete the picture of its situation.

The trunk of the tree is of dimensions so vast, that very many men, by their united hands, cannot embrace it; botanical data do not exist for the determination of its age; the tree is too sacred probably to allow of the requisite steps for that examination. The trunk at first sight almost appears, as if it consisted of a number of trees all intimately united together; and from all sides of it huge irregular boughs jut up of all sorts of shapes, and in every direction, while the deep furrows and hollows consequent upon extreme vegetable old age contribute to give the monster a grandeur and awfulness of character not easily conceivable. perhaps the greatest marvel about the tree is the remarkable fact, that it is actually made up of two trees united into one; and most curious to relate, two trees of the same genus, but of *different species*! Both have grown together, so as to form one indivisible trunk of enormous size; but the distinctive features of each species come out in the branches, and appear, even to the eye of the casual observer and untutored savage, in the remarkable difference in the colour of the foliage. At a little distance the spectacle is very

peculiar. The leaves of one species are of the most lively and beautiful green, while those of the other are dark green on the upper surface, and a very pale green on the under. The one species has long, slender, drooping branches, adorned with elegant foliage, refreshing even to look upon; from its majestic appearance this kind is commonly planted before the palaces of the Indian princes; its larger branches puts forth fascicles of roots, which, instead of descending as they commonly do to the earth, have crept along the aged trunk, wrapped their strong arms around it, and have ultimately blended themselves with its substance. The other species, less graceful in growth, has shorter, more rugged, and lustier branches, and by these and the colour of its leaves was readily distinguished from its twin sister. Below, both were as it were, fused into one vast mass, mingling its juices and fibres together. The trees both belong to the natural family *Moraceæ*, a race of trees which has given birth to some of the giants of the vegetable world, they are of the genus *Ficus*. This genus is held very sacred in Java, for it is believed the spirits of the departed delight to make their habitation in the grateful shadows of its branches.

It was in the latter part of the year 1818, that the author of the "Flora Javoe" made his visit to this celebrated wonder. The visiting party determined on setting out on the expedition before sunrise, which is the pleasantest period for travelling, impelled not merely by the idle curiosity excited by the thousand fables current relative to this marvel-doing, marvellously-great tree, but instigated by the more praiseworthy desire of ascertaining its scientific character and standing. Since, however, the natives regarded the tree with a superstitious awe of no common intensity, and considered it a heinous degree of sacrilege for a European so much as to break off the smallest branch, it was probable they would resist all botanising attempts upon its sacred boughs, and it became expedient, therefore, to get the authority of the Indian prince then having power in the island to sanction the meditated investigation. This was readily granted, and with it the assistance of a military convoy; and so all started before day-dawn. The route lay for the most part along the military road; and after passing long rows of the huts of the natives, the party at length emerged upon the plain on which the tree stands. Immediately to the right was the vast object of attraction, its aspect imposing in the extreme, which was heightened by the dim shadows of a departing night, still covering hill, valley, mountain, and plain in a dusky mantle of vapour, through which the first beams of the sun were now struggling. Even at this early hour, the belief of the wonderful blessings which were bestowed upon the worshippers who made the proper offerings to the leafy god, had drawn a considerable number of them together, some of whom were lost in contemplation of the green idol, while others were humbly kneeling before the pieces of stone, and the giant's footmark in the bit of rock in the chapel. On perceiving their occupation, the expedition halted, not wishing to disturb their devotions; but these were instantly stopped when the visitors were descried, the devotees rising from their knees, and quitting the chapel. The priests then approached, and stood near the entrance of the chapel, waiting to learn the purpose of the invaders. They were addressed by an Indian interpreter, who, after saluting the venerable fathers in the oriental fashion, gave vent to a long harangue, which stated in a good many words what we may express by a very few. The principal visitor had recently arrived in Java, from the most distant regions of the earth, to examine the plants of the island, and more particularly to make himself acquainted with this venerable and most sacred tree. Their lord the prince, himself a real lineal descendant of the most noble and ancient race of Padjajaran kings, having therefore a hereditary right over the tree, on being acquainted with the visitor's intentions, had been pleased to vouchsafe his consent to the expedition, and had given orders that the visitor might cut with his own hand a few of the smallest branches of the sacred tree. It was also intimated that nothing would please the prince more than if the departed spirits who dwelt in the tree would suffer the visitor to remove a few of the precious flowers growing upon it.

This rather startling proposition was attentively listened to by the priests, who seemed puzzled to comprehend its entire import. They held an earnest conference together, and commenced pronouncing in a gentle whisper certain mysterious verses; after which kindling some rice chaff, they threw upon it a quantity of incense, the smoke of which went up in a dense cloud, and filled the tree with its sweet odours. Every eye was fixed upon the curling wreaths rolling from branch to branch; and when at length the whole mass of the foliage was enveloped in the cloud, the chief-priest, an aged, awful-looking person, stood forth, and after bidding the stranger welcome, proceeded to inform him of the result of their sacrifice. Never had the priests of this most holy tree beheld a better omen in the rise of the sweet-smelling vapours, and their dispersion through its branches, than on this happy occasion. The visit of the illustrious stranger was most agreeable to the spirits of the departed; they were most willing to grant his requests, and to give him many additional blessings; while those who with sacrilegious hands should presume to desecrate this holy tree, disease and evil should fall upon and utterly destroy. The great difficulty was thus removed: the full permission of the priests being gained, and the customary offering made at the shrine, the visitor proceeded to scramble in a most irreverent manner up the aged sides and lateral branches of the tree, the priests themselves urging several peasants who were at hand to ascend also, and assist the stranger in collecting what he required. On ascending, words can scarcely describe the scene which presented itself. The tree was clothed all over with elegant flowers and parasitic plants. Orchids, in a multitude of species; crawled up its withered branches, and flung down flowers, and roots, and leaves, in one waving mass of fantastic fragrance and elegance. Lichens scaled up the wooden cliffs, and ferns of many species grew up from the dark hollows, while loranthus sucked the vital juices, and scrophulariads covered the branches in a patchwork of brilliant hues. The tree was, in fact, a garden in the air; the rain of ages had washed down into its cavities, dead leaves and decaying material, and thus a rich vegetable mould existed in them, which was highly fitted for, and gave exuberant nourishment to the host of plants which, in some inexplicable manner, had found their way thither. After remaining in the tree for some time, and fearing to exhaust the patience of the priests, the visitor descended, together with his delighted coadjutors, bringing down with them a large collection of flowers from this parterre of nature—if the phrase is not too violent—and even then perceiving, to their regret, that fully half the species had not been gathered by them.



Amanita muscaria, var.

AMANITA MUSCARIA.—VARIETIES OF FLY AMANITA.

CLASS XXIV. CRYPTOGAMIA.—ORDER IV. FUNGI.

NATURAL ORDER, FUNGI.—THE MUSHROOM TRIBE.

GEN. CHAR. *Pileus* furnished with a stem and *volva*, and bearing on its inferior surface straight sporiferous *lamellæ*. *Stem* either with a ring-like veil, or naked.

SPEC. CHAR. Margin of the *pileus* striated, shining, warty, rarely naked; *warts* and *lamellæ* white; *volva* vanishing, scaly; *stipes* bulbous.

The *pileus* is from three to six inches in diameter, convex at first, striated at the margin, varying very much in colour, being mostly bright red, orange, or green, but sometimes liver-coloured, yellowish, or even whitish, and beset with downy, angular warts. The warts are white, or yellowish, prominent, pretty regular, scattered over the surface, but sometimes wanting. The *lamellæ* are flat, adnate with the *stipes*, very numerous, broad, and whitish. The flesh is thick, and white, partaking to a small depth of the colour of the *pileus*. The *stipes* is cylindrical, smooth, white, very straight, subsolid, from four to eight inches high, and bulbous at the base. The *volva*, according to Dr. Greville, is perfect only in extremely young plants, cracking immediately into pyramidal warts, which become less elevated, and more distinct, as the *pileus* expands, and generally leave a few traces upon the bulb, at the base of the stem.

Withering believed the *A. cesarea* and *xerampelina* to be one, or merely varieties, of the same species. From this opinion, however, Dr. Greville dissents. From a mere verbal description of this Agaric, it is evident that its appearance must be rich in the extreme. The *stipes* is columnar, slightly tapering upwards, about five inches high and half an inch in diameter, of a rich buff colour shaded with red; the *pileus* is about twelve inches round, convex, and bossed in the centre, with the circumference bent down. The upper surface is at first of a beautiful carmine, which changes after a time to a rich orange, and ultimately becomes buff; the *hymenium* is of a bright golden yellow, tending to orange at the extremities of the gills, where they meet the red tunic of the *pileus*.

Amanita nivalis, which Dr. Greville says is the most alpine fungus he is acquainted with, and which grows on the bleak summits of the Grampians, enlivening by its symmetry and extreme whiteness the few turfy spots that occur in those desert regions, is found also in Italy, according to De Candolle, who quotes from Michelli, and says that it is eaten by the Tuscans, and by them called *Fungo marzuolo*, or *dormiente*. *Amanita ovöidea* is also said to be delicious; and *A. vaginata* is fed upon by the poor in Muscovy: but cases are on record in which it has proved poisonous.

The *Amanita imperialis* has long been notorious for its intoxicating and poisonous properties. It has sometimes been eaten by mistake, and the results have proved fatal. Linnæus tells us that in Denmark the natives cut it in pieces, which they steep in milk, and it then proves as destructive to flies as arsenic; hence it has received its present specific name, *Muscaria*. Dr. Johnston corroborates this fact, by stating that he has observed flies which sip the dirty yellow liquor into which the *Amanita* dissolves die almost immediately. Haller mentions the cases of six Lithuanians, who perished at one time by eating this *Amanita*. And Christison, among other instances, relates those of four French soldiers, who were killed, and others who were much disordered, by a similar fatal repast. Orfila likewise records similar examples of its virulence, in one of which a whole family was poisoned, and although some were recovered by speedy remedies, two died. The *Amanita* is nevertheless employed by the Ostiacks of Siberia, the Kamtschatdales, and Koriacks, for the purpose of producing intoxication. These infatuated people "sometimes eat it dry, sometimes immersed in a fermented liquor made with the *epilobium*, which they drink, notwithstanding the dreadful effects that inevitably follow. At first they are seized with convulsions in all their limbs, then with a raving, such as attends a burning fever; a thousand phantoms, gay or gloomy, according to their constitutions, present themselves to their imaginations; some dance, others are seized with unspeakable horrors. They personify this mushroom; and if its effects urge them to suicide, or any dreadful crime, they say they obey its commands. To fit themselves for premeditated assassinations, they take the *Mouchomore*, the Russian name of this Agaric; and, such is the fascination of drunkenness in this country, that nothing can induce the natives to forbear this dreadful poison."—(Pennant.)

The most complete and satisfactory account of this fungus, and its extraordinary effects, will be found in a German essay, by Dr. Langsdorf, in *Annalen der Wetterauischen Gesellschaft für die gesammte Naturkunde*. This essay has been quoted by Dr. Greville, in his treatise on the esculent Fungi of Great Britain, and from his translation the following are extracts.

"The variety of *Amanita muscaria*, called *Kamtschatka*, is used by the inhabitants of the north-eastern parts of Asia in the same manner as wine, brandy, arrack, opium, &c. are by other nations. These fungi are found most plentifully about Wischna, Kamtschatka, and Mitkove Derewna, and are very abundant in some seasons, and scarce in others. They are collected in the hottest months, and hung up by a string in the air to dry; some dry of themselves on the ground, and are said to be far more narcotic than those artificially preserved. Small deep-coloured specimens, thickly covered with warts, are also said to be more powerful than those of a larger size and paler colour.

"One large or two small fungi, is a common dose to produce a pleasant intoxication for a whole day, particularly if water be drank after it, which augments the narcotic effect. The desired effect comes on from one to two hours after taking the fungus, in the same manner as from wine or spirits: cheerful emotions of

the mind are first produced; the countenance becomes flushed; involuntary words and actions follow, and sometimes, at last, an entire loss of consciousness. It renders some remarkably active, and proves highly stimulant to muscular exertion: with too large a dose, violent spasmodic actions are produced.

"Poisoning by Mushrooms" says Professor Taylor, (on Poisons, p. 768) "is by no means unusual as the result of accident. Modern writers on this subject have described no less than forty species, of which only a few can be safely eaten in this country. Among them the *Agaricus Campestris* and *Esulentus* are perhaps most commonly employed as articles of food. It is a curious fact, that the poisonous properties of mushrooms vary with climate, and probably with the season of the year at which they are gathered. Another circumstance deserving of notice is, that by idiosyncrasy, some individuals are liable to be seriously affected even by those species which are commonly regarded as innocent. Some species which are poisonous in this country, are used freely by the Russians; although it appears they are in the habit of salting, boiling, and compressing them before they are eaten;—this may in some instances suffice to account for their having no noxious effects. Dr. Badham states that the *Agaricus Campestris* or common mushroom, which is largely eaten in England, is regarded as poisonous in Rome, and is accordingly rejected; while many varieties, which in this country would produce symptoms of poisoning, are eaten with impunity. There do not appear to be any satisfactory rules for distinguishing the mushrooms which are wholesome from those which are poisonous. The best test is that assigned by Dr. Christison—namely, that the poisonous vegetable has an astringent styptic taste, and perhaps also a disagreeable, but certainly a pungent odour. All mushrooms that are highly coloured, or grow in dark and shady places, are generally poisonous.

"The noxious species of mushrooms act sometimes as narcotics, at others as irritants. It would appear from the reports of several cases, that when the narcotic symptoms are excited, they come on soon after the meal at which the mushrooms have been eaten, and that they are chiefly manifested by giddiness, dimness of sight, and debility. The person appears as if intoxicated, and they are singular illusions of sense. Spasms and convulsions have been occasionally witnessed among the symptoms where the case has proved fatal. Dr. Peddie has related three cases of poisoning by mushrooms, in which the poison acted as a pure narcotic; there was no pain in the abdomen, nor irritation in the alimentary canal. The narcotic symptoms began in half an hour with giddiness and stupor; the first effect with one patient was, that every object appeared to him to be of a blue colour. The three patients recovered, two of them rapidly. When the drowsiness passes off, there is generally nausea and vomiting; but sometimes vomiting and diarrhoea precede the stupor. If the symptoms do not occur until many hours after the meal, they partake more of the characters of irritation;—indicated by pain and swelling of the abdomen, vomiting, and purging. Several cases, in which the symptoms did not appear until after the lapse of fourteen hours, are reported in the Medical Gazette (vol. xxv. p. 110.) In some instances the symptoms of poisoning have not commenced until after the lapse of thirty hours, and in these narcotism followed the symptoms of irritation. It might be supposed that these variable effects were due to different properties in the mushrooms, but the same fungi have acted on members of the same family, in one case like irritants, and in another like narcotics. In most cases recovery takes place, especially if vomiting be early induced. In the few instances which have proved fatal, there has been more or less inflammation in the stomach and bowels, with turgescence of the vessels of the brain. Balardini states, that of sixty-eight cases of poisoning by mushrooms, which occurred in the province of Brescia during a period of twenty years, twenty proved fatal. The principal symptoms were nausea, uneasiness in the abdomen, vertigo; a state resembling intoxication; vomiting and diarrhoea; loss of power of locomotion, with convulsions. In six cases which occurred to Dr. Keber, in which the *Helvella esculenta* had caused symptoms of poisoning, the patients became jaundiced as soon as the vomiting had ceased. The principal symptom was urgent vomiting, but one girl, age 18, fell into a state of coma, from which she did not recover for three days. It was probable that in this instance the noxious effects were due to season. The common truffle (*Morchella esculenta*) has been known to give rise to severe symptoms of irritant poisoning. In some cases lately reported (Ed. Med. and Surg. Journ., Oct. 1845, 530), it is probable that the truffles had undergone decomposition before they were eaten.

"Ketchup, a liquor made from mushrooms, has occasioned faintness, nausea, and severe pain in the abdomen, disappearing only after some hours. (Dub. Med. Press, Sep. 24, 1845, 195.) There are two ways of explaining this effect: 1st, either that the individual labours under an idiosyncrasy with respect to mushrooms in general; or 2ndly, that noxious, have been gathered by mistake for esculent mushrooms. A case is on record which shows that a medical jurist may be easily misled when any active poison is mixed with and administered in a dish of mushrooms. A servant-girl poisoned her mistress by mixing arsenic with mushrooms. This person died in twenty hours, after suffering severely from vomiting and colicky pains. On dissection, the stomach and intestines were found inflamed. Death was ascribed to the effects of the mushrooms, which were considered to have been unwholesome, and the fact of poisoning only came out many years afterwards, by the confession of the prisoner. This shows with what a watchful eye such cases should be examined; in the absence of poison from the stomach, it would be extremely difficult to develop the truth.

ANALYSIS.—The discovery of portions of the fungus in the matter vomited, or the description of the food eaten, will commonly lead to a diagnosis of this form of poisoning. The poisonous principle contained in mushrooms is called *Fungin*; it appears to be of a volatile nature, and soluble in water, for some varieties of noxious mushrooms may be eaten with impunity when they have been well boiled in water and afterwards pressed. One of the most poisonous in this country, *Amanita muscaria*, or Fly-mushroom, renders the water in which it is boiled so poisonous, that animals are killed by it, while the boiled fungus itself has no effect upon them.



Anemone sylvestris.

ANEMONE SYLVESTRIS.—SNOWDROP ANEMONE.

CLASS XIII. POLYANDRIA.—ORDER III. POLYGYNIA.

NATURAL ORDER, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

THE Anemones are natives of the East, from whence their roots were originally brought; but they have been so much improved by culture, as to take a high rank among the ornaments of our gardens in the spring. As they do not blow the first year, it will be more convenient to purchase the plants from a nursery than to rear them at home; on another account also it will be better, for they vary so much that it is impossible to secure the handsomest kinds by the seed; and when in flower they may be selected according to the taste of the purchaser. They should be sheltered from frost and heavy rains, light showers will refresh them, and in dry weather they should be watered every evening, but very gently. When the roots are once obtained, they may be increased by parting.

Parkinson very accurately notices the striking characters of *Anemone Sylvestris*, which are its creeping roots, its large white flowers standing on the tops of the flower-stalks, which sometimes grow two together, but most commonly singly; the leaves on the stalk, he observes, are more finely divided than those of the root, and its seeds are woolly.

Miller describes it as having little beauty, and therefore but seldom planted in gardens; it is true, it does not recommend itself by the gaudiness of its colours, but there is in the flowers, especially before they expand, a simple elegance somewhat like that of the Snowdrop, and which affords a pleasing contrast to the more showy flowers of the garden.

It flowers in May and ripens its seeds in June. It will grow in almost any soil or situation, is propagated by offsets from the root, which it puts out most plentifully, so as indeed sometimes to be troublesome. Is a native of Germany.

*“The Narrow-leaved Garden Anemone grows wild in the Levant. In the islands of the Archipelago the borders of the fields are covered with it in almost every variety of colour; but these are single, culture has made them double.

“Of the double varieties of this species there are nearly two hundred. To be a fine one, a double Anemone should have a strong upright stem, about nine inches high; the flower should be from two to three inches in diameter: the outer petals should be firm, horizontal, unless they turn up a little at the end, and the smaller petals within these should lie gracefully one over the other. The plain colours should be brilliant, the variegated clear and distinct.

“The Broad-leaved Garden Anemone is found wild with single flowers in Germany, Italy, and Provence; the single varieties are sometimes called Star-Anemones: they are very numerous, as are also the double varieties, of which the most remarkable are the great double Anemone of Constantinople, or Spanish marygold, the great double Orange-tawney, the double Anemone of Cyprus, and the double Persian Anemone.

“There is a species called the Wood-Anemone, which grows in the woods and hedges in most parts of Europe. In March, April, and May, many of our woods are almost covered with these flowers, which expand in clear weather, and look towards the sun, but in the evening and in wet weather, close and droop their heads. When the Wood-Anemone becomes double, it is cultivated by the gardeners, and were the same pains taken with this as with the foreign Anemones, it would probably become valuable.

“Anemone roots may be planted towards the end of September, and again a month later, some plant a third set about Christmas. The first planted will begin to flower early in April, and continue for three or four weeks, the others will follow in succession. As soon as the leaves decay, which of those first planted will be in June, the roots should be taken up, the decayed parts and the earth cleared away, and, having been dried in the shade, they should be put in some secure place where they may be perfectly dry, and particularly where mice, &c. cannot find access to them. This opportunity may be taken to part the roots for increase, and provided each part has a good eye or bud, it will grow and flower, but they will not flower so strong if parted small. The roots will be weakened if suffered to remain long in the earth after the leaves decay. They will keep out of the earth for two or even three years, and grow when planted. The single, or Poppy Anemone, will in mild seasons, blow throughout the winter.

“Earth proper for the Anemone may be procured from a nursery, the roots may be planted in pots five inches wide, the earth an inch and a half deep over the top of the roots, and the eye of the root upwards. They must be kept moderately moist, shaded from the noon-day sun, and exposed to that of the morning. In the winter they should be placed under shelter, but should have plenty of fresh air when not frosty.”

The Abbé la Pluche relates a curious anecdote of M. Bachelier, a Parisian florist, who, having imported some very beautiful species of the Anemone from the East Indies to Paris, kept them to himself in so miserly a manner, that for ten successive years he never would give to any friend or relation whomsoever the least fibre of a double Anemone, or the root of one single one. A counsellor of the parliament, vexed to see one man hoard up for himself a benefit which nature intended to be common to all, paid him a visit at his country house, and in walking round the garden, when he came to a bed of his Anemones, which were at that time in seed, artfully let his robe fall upon them; by which device he swept off a considerable number of the little grains, which stuck fast to it. His servant, whom he had purposely instructed, dexterously wrapped them up in a moment without exciting any attention. The counsellor a short time after communicated to his friends the success of his project, and by their participation of his innocent theft the flower became generally known.

Tournefort, who also relates this story, says that this ingenious flower-stealer took with him three or four of his friends to visit M. Bachelier, and that when they drew near to the place where the Anemones were placed, they began to amuse him, and engage his attention by relating different tales and anecdotes, to prevent his observing what was passing around him.

Rapin, in his poem on gardens, ascribes the birth of the Anemone to the jealousy of Flora, who fearing that the incomparable beauty of a Grecian nymph would win from her the love of her husband Zephyr, transformed her into this flower. But to this tale he adds an account better authorised, of the Anemone having sprung from the blood of Adonis and the tears of Venus shed over his body; and it is but common justice to Flora to observe that this is the generally received opinion of the origin of the Anemone. Cowley gives it this parentage in his poem on plants. Ovid describes Venus lamenting over the bleeding body of her lover, whose memory and her own grief she resolves to perpetuate by changing his blood to a flower, but less poetically than some others; he substitutes nectar for the tears of Venus, not even hinting that the said nectar was the tears of the goddess.

"But be thy blood a flower. Had Proserpine
The power to change a nymph to mint?—Is mine
Inferior? or will any envy me
For such a change? Thus having utter'd, she
Pour'd nectar on it, of a fragrant smell;
Sprinkled therewith, the blood began to swell,
Like shining bubbles that from drops ascend;
And ere an hour was fully at an end,

"By this, the boy that by her side lay killed,
Was melted like a vapour from her sight;
And in his blood, that on the ground lay spilled,
A purple flower sprung up chequered with white,

From thence a flower, alike in colour, rose,
Such as those trees produce, whose fruits enclose
Within the limber rind their purple grains;
And yet the beauty but awhile remains;
For those light-hanging leaves, infirmly placed,
The winds, that blow on all things, quickly blast."
SANDYS' OVID, book x.

Resembling well his pale cheeks, and the blood
Which in round drops upon their whiteness stood."

SHAKESPEARE'S VENUS AND ADONIS.

The Spanish poet, Garcilasso, attributes the red colour only of the Anemone to the blood of Adonis:

"His sunbeam-tinted tresses drooped unbound,
Sweeping the earth with negligence uncouth;
The white anemones that near him blew
Felt his red blood, and red for ever grew."—WIFFIN'S Translation, p. 273.

The Greek poet, Bion, in his epitaph on Adonis, makes the Anemone the offspring of the goddess's tears.

Mr. Horace Smith, in his poem of Amarynthus, supports the first reason for naming this flower the wind-flower—that it never opens but when the wind blows:

"And when I gather'd rushes, and began
To weave a garland for you, intertwined
With violets, hepaticas, primroses,
And coy Anemone, that ne'er uncloses
Her lips until they're blown on by the wind."—AMARYNTHUS, p. 46.

It seems more usual, as well as in character, for the presence of the sun to unclothe the lips of the Anemone, which commonly close when he withdraws; but when he shines clear,

"Then thickly strewn in woodland bowers,
Anemones their stars unfold."

Sir W. Jones has translated an ode from the Turkish of Mesihi, in which the author celebrates several of the more sweet or splendid flowers:

"See! you anemones their leaves unfold,
With rubies flaming, and with living gold."

"The sweetness of the bower has made the air so fragrant, that the dew before it falls is changed into rose water."

"The dew-drops, sweeten'd by the musky gale,
Are changed to essence ere they reach the dale."

An Anemone with the motto, "Brevis est usus,"—"Her reign is short," admirably expresses the rapid decline of beauty.

Dr. Taylor observes (Poisons, p. 509) that, "This is a genus of plants comprising several species, all possessed of irritating properties in the moist state, but which they appear to lose in great part when dried or exposed to heat, owing to the presence of a volatile principle, *Anemonine*. These plants have a strong acrid burning taste, which is stronger in the roots than in the leaves. The *Anemone Pulsatilla* (Wind Flower), and *Anemone Pratensis*, are the two principal varieties. Small doses of the extract of the latter produced, according to Stork, pain in the abdomen and diarrhoea. The different parts of these vegetables have a local irritant action. All that is known concerning their operation on the human subject, is comprised in the following cases. Haller and Bockler remarked that they caused vesication of the skin, and that the distilled water produced nausea and vomiting. Orfila relates that an apothecary suffered from irritation of the eyes, colic, and vomiting, after having bruised some anemone pulsatilla. (Toxicologie, ii. 133.) Bulliard reports the case of a man who applied the bruised leaves of the plant to the calf of his leg. There was great pain for ten or twelve hours, and the local irritation was so severe that inflammation and gangrene followed. (Orfila, ib.; also Wibmer Die Wirkung der Arzneimittel, i. 178.) No instance is recorded of the plant having destroyed human life, but experiments on animals show that it will act fatally like other irritants; and that it causes most violent inflammation in all parts of the alimentary canal. In some instances symptoms indicative of an affection of the nervous system appeared.

ANALYSIS.—The nature of this poison can only be determined by the botanical characters of the plant. In the language of Flowers, Anemone is the emblem of Forsaken.



Polypodium Filix mas.

ASPIDIUM FELIX MAS.—MALE SHIELD FERN.

CLASS XXIV. CRYPTOGRAMIA.—ORDER I. FILICES.

NATURAL ORDER, FILICES.—THE FERN TRIBE.

GEN. CHAR. *Fructification* in roundish points, scattered, not marginal. *Involucre* umbilicated, open almost on every side.

SPEC. CHAR. *Frond* nearly bipinnate. *Pinnæ* obtuse, notched. *Stipe* chaffy.

This species of Fern is the *Ὠλυπτερίς* of Dioscorides; it is a native of Britain, and is found in great abundance about the borders of woods, rivulets, and in stony rocky places, flowering in June and July. This species of fern (with others of the same family,) was ranked by Linnæus under the genus *Polypodium*, or Polypody tribe of plants; but modern botanists have separated the shield-fern from the Polypody, and formed a distinct genus of the shield-fern under the generic title *Aspidium*.*

The root is perennial, large, long, firm, and covered with thick brown imbricated scales, and furnished with numerous long fibres; the general leaves are pinnate, large, from one to four feet in length, lance-shaped, broader in the middle and gradually decreasing to each extremity, terminating above in an acute point; the partial or second leaves are from fifteen to twenty pair, remote on the lower part, gradually approaching nearer as they advance upwards, and running together at the top; the pinnæ are from seven to fifteen pair, which are largest at the bottom, and gradually decrease towards the top, where they unite in a point, they are of an oval form, and somewhat crenate at the upper extremity; the seed vessels are placed in two rows on the back of the pinnæ or lobes, in number from three to six, and covered with a pellicle; when the seeds are ripe, the pellicle bursts, and after the discharge of the seeds, the vessels become brown and appear as if covered with dust.

The Brakes or frondose ferns, Professor Burnett tells us, are not very extensively employed by man, either as food or in medicine. One species only finds a place in our national pharmacopœias, although several are possessed of curative powers, and are esteemed officinal plants in our provinces, and are entered by authority in the continental lists of the vegetable materia medica. Even the *Aspidium felix mas*, the only fern our colleges retain, is very rarely used; and yet, from its having been celebrated as an anthelmintic from time immemorial, and more especially from its never having been lauded as a panacea, like many fashionable medicines, which run their course and are forgotten, but always possessing a certain degree of reputation, it is not unreasonable to believe that it deserves it; and, if so, that it does not merit the neglect that it meets with here. The so-called male fern was recommended as a vermifuge by Theophrastus, Dioscorides, and Galen; and its administration formed the ostensibly specific, if not the most energetic, part of the treatment recommended by Madame Noufer in cases of tape-worm. But it cannot be overlooked that she accompanied its exhibition with a strong dose of calomel, gamboge, and scammony, the very ingredients that formed the famous "*Pulvis Trium Diabolorum*," and which were thought, in their alliance, to be powerful enough to discomfit even a more stubborn enemy than tænia.

The Scythian or Tartarian lamb is a species of *Aspidium*. Of this fern so many wonderful tales have been told, and supported by such evidence, that the world has doubted whether to discredit or believe them. Struys, who travelled through Russia, Tartary, &c., in the middle of the seventeenth century, gave one of the earliest and best accounts of this curious plant, and the following extract is almost a literal translation from his work.

* By mistake *Polypodium* was put on our drawing, and the error discovered too late to rectify.

"On the western side of the Volga there is an elevated salt plain of vast extent, but wholly uncultivated and uninhabited. On this plain, which furnishes all the neighbouring countries with salt, grows the *Boranez* or *Bornitsch*. This wonderful plant has the shape and appearance of a lamb, with feet, head, and tail distinctly formed. Boranez, in the language of Muscovy, signifies a little lamb, [Kämpfer says that the sheep of the country are called by the people dwelling on the borders of the Caspian Sea, *Borannek*;] and a similar name is given to this fern. Its skin (continues Struys) is covered with a very white down, as soft as silk. The Tartars and Muscovites esteem it highly, and preserve it with great care in their houses, where I have seen many such lambs. The sailor who gave me one of these precious plants, found it in a wood, and had its skin made into an under-waistcoat. I learned at Astracan, from those who were best acquainted with the subject, that the lamb grows upon a stalk about three feet high; that the part by which it is sustained is a kind of navel, and that it turns itself round, and bends downwards to the herbage which serves for its food. They also said that it dries up, and pines away, when the grass fails. To this I objected, that the langour and occasional withering might be natural to it, as plants are accustomed to fade at certain times. To this they replied, that they had also once thought so, but that numerous experiments proved the contrary to be the fact; such as cutting away, or by other means corrupting or destroying the grass all around it; after which, they assured me, that it fell into a languishing state, and decayed insensibly. These persons also added, that the wolves are very fond of these vegetable lambs, and that they devour them with avidity, because they resemble in taste the animals whose name they bear; and that, in fact, they have *bones*, blood, and flesh; and hence they are called zoophytes, *i.e.* plant-animals. Many other things I was likewise told, which might however appear scarcely probable to such as have not seen them." *Struy's Travels*, vol. ii. pp. 28—31.)

This wonderful tale of Struys, like many other similar stories, although very much perverted, is based on truth. The rhizoma of the *Aspidium Baromez* does present, when the fronds are removed, a rude resemblance in its shape to the figure of an animal. It is covered by a soft downy substance, which may be compared to a silky fleece, but from which no under-waistcoat could be made. This fleece is of a reddish-brown colour, and not white. Like the stems of other ferns, the inner parts are soft and pulpy; and it so happens that they have something of a flesh colour, and that the sap is of a rich red hue, resembling blood. From these materials the fable has been composed; and from far less truth much more wonderful histories have sprung. Ferns often grow in barren soils; and, as these vegetable lambs are found on the salt plains, it is not improbable that in such situations they are often seen without grass in their vicinity: but that the herbage is consumed by the fern, or the plants devoured instead of lambs by wolves, although speculations which the wonder-seeking traveller might be tempted to indulge in, it need not be said are ornamental additions, introduced to suit the taste of the narrator, and to pander to that love of the marvellous which prevailed in the age in which he lived.

The *Baromez* possesses astringent properties, which are common to all ferns, in a somewhat greater degree than many other species. Hence it was formerly much in repute as a styptic, but it is now seldom, if ever, used. Fresh plants are often brought to the markets at Macao, but none have ever yet reached this country alive.

The *Aspidia*, or shield ferns, have been so named from the resemblance their indusia bear to little bucklers (*ασπιδιον*). *Aspidium fragrans* has been employed as a substitute for tea; and Dr. Buchanan states that the roots of *Nephrodium esculentum*, one of the species in a subgenus of *Aspidium*, are eaten in Nipaul. Mathiole attributes to *Aspidia* the virtue of inspiring prophetic dreams.

In the language of Flowers, Fern is the emblem of Reverie.



Amaryllis Undulata

AMARYLLIS UNDULATA.—WAVED-FLOWERED AMARYLLIS.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMARYLLIDÆ.—THE NARCISSUS TRIBE.

THE name of *Amaryllis* is supposed to be derived from a Greek word signifying splendour; “and is given,” says Mr. Martyn, “with great propriety, to this splendid genus.” In the flowers of this species of *Amaryllis*, a native of the Cape, and introduced about 1767, by John Blackburne, Esq., there is a considerable degree of beauty, and still more of singularity; and the plant is rendered more desirable, from its producing those flowers towards the close of autumn, so late as October and November, and that too both readily and abundantly. Being a tender bulb, it is usually kept during the winter in the greenhouse, or a well-secured frame. Is propagated by offsets, which are plentifully produced.

The Yellow *Amaryllis*, or Autumnal Narcissus, is a native of the South of France, Spain, Italy, and Thrace. The flowers seldom rise above four inches high; and somewhat resemble the Yellow Crocus. Like that, too, its leaves grow all the winter, after the flowers are past. It flowers in September, is very hardy, and increases fast by offsets. They may be transplanted any time from May to the end of July, but not later.

This plant prefers a light dry soil, and an open situation. It must not be under the dripping of trees. In mild seasons, there will often be, from the same root, a succession of flowers from September to the middle of November. It should be kept moderately moist. The Turks frequently plant this flower about the graves of their deceased friends.

The Alamasco Lily is a native of Virginia and Carolina, where it grows plentifully in the fields and woods, and makes a beautiful show. At their first appearance the flowers are of a fine carnation colour outside, but they fade almost to white: they blow from May to July or August.

It may be increased by offsets: the bulbs should be removed every second year, and if they begin to shoot while out of the earth, should be planted immediately. It should be kept moderately moist.

The Jacobæa Lily—in French, *le lys de St. Jaques* [St. James’s lily]; *la croix de St. Jaques* [St. James’s cross]; *la belle amarillis*: and in Italian, *giglio narciso giacobeo*—produces its flowers two or three times in the year, not at any regular season. It furnishes plenty of offsets, which should be taken off every year: the best time is in August, that they may take good root before winter. In removing the roots, great care should be taken not to break off their fibres. This flower may stand abroad in the summer, but in the winter should be lodged in an inhabited room. It must be kept moist.

This Lily is a native of South America: the flowers are large, of a deep red, and bend gracefully on one side of the stalk. Parkinson calls it the Indian Daffodil.

The Belladonna Lily—called by the French, *lis de Mexique* [Mexico lily]; *la belle dame*; and by the Italians, *narciso bella donna* [fine lady narcissus]—is a native of the West Indies, and grows on shady hills, and by the margins of streams. It is of a pale purple colour, inclining to white towards the centre. It was first brought to England from Portugal, and is very common in the Italian gardens, particularly in the neighbourhood of Florence, where it is sold in the markets under the name of Narcissus-belladonna. This Lily is very fragrant. It flowers about the end of September or the beginning of October, and, if the weather be favourable, will continue in bloom a month, or more. In June the leaves decay, and the root should be transplanted soon after: for, if it remains till July, it will send forth new fibres; and removal then would injure it. It should remain in the house in the winter, and be kept moderately moist.

The Superb, or riband *Amaryllis*, is supposed to be a native of the Cape: the flowers are very beautiful; a white ground striped with red. Unless hastened by artificial heat, they open in April or May. As this bulb rarely produces offsets, it should be procured in a pot, and treated as the last.

The long-leaved Lily, or *Amaryllis*, is a native of the Cape of Good Hope. The flower stem is seldom more than four inches high, but bears a profusion of purple flowers, opening in December. It may be treated as the Jacobæa Lily.

The Guernsey Lily, called in France *le lis de Japon*, is extremely handsome; it is a native of Japan, but has long been naturalized at Guernsey, from which place it is named. There are from eight to twelve flowers on one plant; the circumference of each flower about seven inches. When in full beauty it has the appearance of a fine gold tissue wrought on a rose-coloured ground; and when it begins to fade it is pink. If beheld in full sunshine, it seems studded with diamonds; but by candle-light looks rather as if it were spangled with fine gold-dust. When the flower begins to wither, the petals assume a deep crimson colour. The flowers begin to appear towards the end of August, and the head is usually three weeks gradually expanding.

The different species of *Amaryllis* are more or less poisonous, and *Hemantus toxicarius*, the old *A. toxicaria*, is the plant with which it is said the Hottentots poison their arrows. Weapons wetted with the juice of the bulb convey certain death by the slightest wound; dissolution is preceded by violent struggles, and efforts to vomit. The flesh of animals thus slain is not deteriorated, but is eaten by the natives. *Nerine sarniensis*, the Guernsey lily, which became naturalized in the islands of Jersey and Guernsey many years ago, by the wreck of a vessel from the Cape, is also reputed to be poisonous. *Amaryllis ornata* is said to be astringent; *Alstræmeria salsilla* is considered useful as a diuretic and diaphoretic: and *A. Ligtu* is esteemed for its scent, it being as grateful as mignonette. *A. salsilla* is cultivated in the West Indies and in America,

especially in Peru, for the sake of its roots, which are there eaten as the tubers of the potato are in Europe. It is worthy of note that the *Amaryllidæ* lose much of their fragrance when the flowers become double, which is precisely the reverse of the multiplication of the petals in *Rosaceous* plants.

Great care ought to be taken by those unacquainted with botany in eating any plant which is not known to them. In many cases the scent, or the dingy appearance of the foliage in flowers, is sufficient to show the dangerous nature of the plant; yet it is unwise to presume on the absence of any visible indications.

The botanist indeed possesses infallible means of distinction, by which, under any circumstance of country or climate, he can detect the presence of poison by an examination of the structure of the vegetable. This knowledge is of incalculable value to the traveller in strange countries.

There prevailed at one time a great mortality among the cattle in some parts of Lapland, for which their owners were quite unable to account. Linnæus discovered that it was caused by the cattle having eaten of the water-hemlock (*Cicuta virosa*).

Animals are, however, provided with an instinct which enables them in most cases to perceive what kinds of food are wholesome for their own species. If a horse be placed in a pasture where the most noxious plants are growing, he will reject them; as is the case when he meets with the *Cenánthe Phellándrium*, which he will not touch.

The various objects of nature are not placed before us that we may extend our hand to gather them, and without any thought or pains to receive from them all their advantages; but to man are given intellectual powers to study, and bodily strength to labour for the extension of their value. All that is necessary to be known respecting our destiny for a future world, is revealed with great plainness by the Scriptures; but for our comfort in this world we are required to exert the capacities with which we are endowed in order to make the requisite discoveries. We may remark, in favour of cultivation, that even the soils most friendly to vegetation, commonly become by it more productive as the nature of the product is rendered more valuable. In every important attainment each one of us should endeavour to leave the world better than we found it, that, even as regards others, we may not have lived in vain.

It is a singular fact respecting plants containing poison, that some of their parts are not only free from an unwholesome quality, but are very nutritious. The potato, which when boiled is so valuable a vegetable, bears poison upon its branches. The leaves and flowers of the peach-tree contain a bitter and poisonous juice; while its fruit is wholesome and delicious, and its gum is of a gentle and mucilaginous nature.

Poisonous plants very generally present, either in their blossoms or leaves, a dingy uninviting appearance. The hemlock has its stem spotted with brownish purple, and its foliage of a dull green. The flowers of plants whose nature is deleterious are very often of a dark purple colour; but, as a proof that this distinction is not invariable, we may mention the hellebore or Christmas-rose. Few who looked upon it would think that a flower whose appearance was so pure and lovely could contain a quality so pernicious; for if it is taken in large quantities it produces giddiness, and even death; yet the botanist upon a slight inspection would feel assured of its dangerous nature.

There are around the centre of this flower a number of stamens or small threads. When blossoms have these numerous stamens inserted on the receptacle, we may conclude the plant to be of an unsafe nature. A familiar instance of this is the common buttercup (*Ranunculus A'cris*). The blossom of the apple-tree, of the plum, the peach, and other fruit-trees, have also a number of stamens, but these are seated on the calyx. If the leaves of the flower-cup and the white petals of the Christmas-rose be carefully pulled off one by one, you will find that the stamens remain behind. If the petals of the apple-blossom be thus used, the stamens will almost all come off with them; and this circumstance determines whether or not flowers thus formed are poisonous.

Two species of hellebore (*Helleborus viridis* and *Helleborus foetidus*) grow wild in woods. Their flowers, which are of a dull yellowish green, have a very unpleasant scent, and the latter species has its calyx edged with a dingy purple, its leaves remaining green through the winter. Altogether its appearance is such that you would probably guess it to be a poisonous plant.

The Greek hellebore (*Helleborus officinális*) was thought by the ancients to invigorate the powers of the mind; and when they were about to engage in any undertaking which required a greater portion of mental energy than usual, they were accustomed to take a small dose of it. It derives its name from two Greek words which signify "to injure" and "food."

The purple foxglove (*Digitális Purpurea*), perhaps the most beautiful ornament of our summer woods and hedges, is extremely deleterious in its nature; and although when used in small quantities it is a valuable remedy for some diseases, yet in the hands of the unskilful it is replete with danger. Its purple bells are large, and their white and spotted interior very handsome, but its colour is rather of a suspicious character, and to those accustomed to notice plants would indicate probable danger.

The monkshood (*Aconitum Napéllus*), found wild in some parts of England, but so common in gardens as that you can scarcely walk in one during summer without meeting it, is a very noxious plant. It is certainly the most gloomy, forbidding-looking flower in the whole parterre. You have perhaps often pulled off the purple hood or helmet of this flower to see the two long thread-like parts placed underneath, which children call the doves of Venus's chariot. This plant contains so much poison as that its scent alone is very injurious, and it ought upon no account to be smelled to, or rubbed over any part of the face. Indeed, were its properties more generally known, we should not have it so often in gardens to which the children of careful parents have access. This flower is called also wolfsbane, because the hunters who chase the wolves upon the Alps dip their arrows in an extract procured from the plant, which ensures the death of the wounded animal.



Hamatoxylum Campechianum.

HÆMATOXYLUM CAMPECHIANUM.—LOGWOOD TREE.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

LOGWOOD, or *Hæmatoxylum campechianum*, is a native of the western world, having been first discovered in the bays of Campeachy and Honduras, growing in the greatest luxuriance and abundance.

This tree seldom exceeds twenty or twenty-five feet in height; the trunk and branches are usually extremely crooked, the former does not often measure more than twenty inches in diameter: both trunk and branches are covered with a rough bark of a brownish colour; the smaller branches, which are very numerous, are beset with sharp spines; the leaves are abruptly pinnated, and consist of four or five pair of obcordate, obliquely nerved, sessile leaflets; the flowers are produced in terminal spikes or racemes; the calyx is divided into five oblong, obtuse segments, of a brownish purple colour; the corolla consists of five obtusely lanceolate, spreading petals, of a deep yellow colour; the stamens are downy, shorter than the petals, and crowned with smaller oval anthers; the style is about the length of the filament; the germen is obovate, and becomes a large double-valved pod, containing four or five kidney-shaped seeds.

It was known as a dye-wood as early as the reign of Elizabeth, but its use was forbidden by an Act of Parliament for "abolishing certain deceitful stuffs employed in dyeing cloths." The act sets forth "that logwood, or blockwood, of late years brought into this realm, is expressly prohibited to be used by dyers, the colours thereof being false and deceitful to the Queen's subjects at home, and discreditable beyond seas to our merchants and dyers." The injunction against the use of this valuable dye was rigorously enforced, and all logwood found was seized and condemned to be burnt. The English were probably at that time ignorant of the manner of applying this dye with proper mordants. The prohibition was continued until the year 1661, the words of the act by which it was then repealed stating "that the ingenious industry of these times hath taught the dyers of England the art of fixing colours made of logwood, so that by experience they are found as lasting and serviceable as the colour made with any other sort of dye-wood."

Immediately after this repeal logwood became in great request, and adventurous individuals were induced to make exertions to obtain a supply. This tree is one of the productions of the province of Yucatan, where the possessions of the Spaniards for a long time consisted only of the port of San Francisco de Campeachy, and two other inconsiderable towns, Merida and Valladolid. These could boast of but few inhabitants, and the rest of the province was wholly desolate, without any indication of the abode of man. The English, from the north continent of America, in the year 1662, tempted by the desire of pursuing a profitable occupation, ventured to cut down some of the logwood trees, which grew in great abundance on the uninhabited parts of the coast of Yucatan, and more especially in the bay of Campeachy. These persons soon formed a small colony in a spot remote from any Spanish settlement. They first raised their huts near Cape Catoche, and afterwards at Laguna de Terminos, which was found to be a more eligible situation. A few settlers thus continued to cut logwood unmolested by the Spaniards, but always with the feeling that they were intruders on the soil of other colonists.

After the treaty of Madrid in 1667, which was principally made for adjusting our commerce with Spain in Europe, British subjects were led to imagine that the respective interests of the two countries in the western hemisphere had also been accurately defined by the same treaty, and that the right of the English to cut logwood in those places of the Honduras, uninhabited by the Spaniards, was now clearly established. Many other persons were therefore in consequence induced to become logwood-cutters at Laguna de Terminos, so that in a year or two the number of settlers was greatly increased, and they transported large quantities of wood both to Jamaica and New England. The Spaniards for many years made no expostulations or complaints, and the English logwood-cutters continued to increase and flourish.

At first a sufficiency of wood was found near the coast, but when this after a time became exhausted, the settlers gradually penetrated farther into the country, where they planted Indian provisions and built houses. The jealousy of the Spaniards was at length excited by this growing colony, and suddenly evinced itself very unceremoniously by the seizure of two English ships laden with logwood. The settlers of Laguna immediately made reprisals by taking possession of a Spanish bark. These mutual acts of violence were only the commencement of a series of hostilities, and after suffering much annoyance, the English settlers were, in 1680, forcibly ejected by the Spaniards from the island of Trist and from Laguna de Terminos. This triumph on the part of their adversaries was, however, but transitory, and in two or three months the English were again cutting their logwood, and trading in it more extensively than ever. Notwithstanding the continued opposition of the Spaniards, the indefatigable settlers still contrived to increase their supply of that article, for whose possession they hazarded so much. Independent of the vexatious warfare by which they were constantly harassed, the lives of these poor wood-cutters were marked with hardship and privation; sometimes they worked up to their knees in water, and they were always tormented by the stings of innumerable insects.

We learn from Dampier that the commodities sent from Jamaica to procure a return cargo of logwood from Campeachy, were rum and sugar, "and very good commodities," says the sailor, "were these for the logwood-cutters, who were then (1675) about 250 men, most English." * * * "Neither was it long," he adds, "before we had these merchants come on board to visit us; we were but six men and a boy in the ship, and all little enough to entertain them: for besides what rum we sold by the gallon or firkin, we sold it made into punch, wherewith they grew frolicsome. We had none but small arms to fire at their drinking healths, and therefore the noise was not very great at a distance, but on board the vessel we were loud enough till all our liquor was spent. We took no money nor expected any, for logwood was what we came hither for, and we had of that in lieu of our commodities after the rate of five pound per ton, to be paid at the place where they cut it."

This occasional festivity, a prospect perhaps of making more than by regular labour in the British colonies, and the entire freedom from all restraint, were circumstances likely to recommend the life of a logwood-cutter in spite of its frequent hardships. It had such charms to the adventurous Dampier himself, that he soon returned and settled for ten or twelve months at Campeachy, and left that place with the intention of again returning for a longer stay. He thus quaintly describes the manner in which the logwood men lived.

"The logwood-cutters inhabit the creeks of the east and west lagunes in small companies, building their huts by the creeks' sides for the benefit of the sea breezes, as near the logwood groves as they can, removing often to be near their business: yet when they are settled in a good open place, they choose rather to go half a mile in their canvas to work than lose this convenience. Though they build their huts but slightly, yet they take care to thatch them very well with palm or palmet leaves, to prevent the rains, which are there very violent, from soaking in.

"For their bedding they raise a barbecue or wooden frame, three foot and a half above ground, on one side of the house, and stick up four stakes at each corner one to fasten their curtains, out of which there is no sleeping for mosquitoes. Another frame they raise covered with earth, for a hearth to dress their victuals, and a third to sit at when they eat it. During the wet season, the land where the logwood grows is so overflowed, that they step from their beds into the water, perhaps two foot deep, and continue standing in the wet all day till they go to bed again; but nevertheless account it the best season for doing a good day's labour in.

"Some fell the trees, others saw and cut them into convenient logs, and one chips off the sap, and he is commonly the principal man; and when a tree is so thick that after it is logged it remains still too great a burthen for one man, we blow it up with gunpowder. The logwood-cutters are generally sturdy strong fellows, and will carry burthens of three or four hundred weight; but every man is left to his choice to carry what he pleaseth, and commonly they agree very well about it, for they are contented to labour very hard. * * * In some places, especially in the west creek of west lagune, they go a hunting wild cattle every Saturday, to provide themselves with beef for the week following. * * * When they have killed a beef they cut it into quarters, and taking out the bones, each man makes a hole in the middle of his quarter just big enough for his head to go through, then puts it on like a frock, and trudgeth home; and if he chanceth to tire, he cuts off some of it and throws it away."

The hides of these wild cattle, and many which they killed merely for their hides, were another valuable article of commerce to these hardy adventurers. Many of these men made considerable sums of money; and Dampier remarks, generally, that those who had the advantage of some education, were careful to improve their time, industrious and frugal; but that those who did not possess this advantage, "would extravagantly squander away their time and money in drinking and making bluster."

The logwood-tree grows abundantly throughout whole districts in Jamaica. Besides being cultivated as a dye-wood, it is used for other purposes. It is found well adapted for making strong full hedges, and is constantly planted for this purpose, no other fences being seen in many parts of the island. It is excellent for fuel, and, according to Dampier, is advantageously used in hardening or tempering steel. The wood of this tree is very hard and heavy; it is of a deep orange red colour; it yields its colour both to aqueous and spirituous menstrua, but the latter extracts it the most readily and copiously. A decoction of this wood is of a deep violet or purple colour, which after a time changes to a yellowish tint, and becomes finally black. Like that of Brazil-wood it is made yellow by acids and deepened by alkalis. Although an adjective dye, it can be made very durable by the judicious application of mordants. With alum and tartar it produces a violet dye; with acetate of copper, a fine blue. But its principal use is in dyeing black, to which it gives a superior lustre, and in the production of all the different shades of grey. It contains a large proportion of gallic acid, whence it is that in combination with acetate of iron, the black colour is produced.

Logwood is imported into England in large blocks, at the very small import duty of three shillings per ton; that brought from foreign countries is chargeable with fifty per cent. higher duty. The average annual importation for the last five years has been 14,092 tons. The average price for the best logwood during that time has been £3 10s. per ton.

Several other vegetable substances are capable of producing a violet, purple, or claret colour. They are not used extensively, if at all, in modern manufactures.



Oxalis Caprina.

OXALIS CAPRINA.—GOAT'S-FOOT WOOD SORREL.

CLASS X. DECANDRIA.—ORDER IV. PENTAGYNIA.

NATURAL ORDER, OXALIDEÆ.—THE WOOD-SORREL TRIBE.

THE Cape of Good-Hope, the most fertile source of curious and beautiful plants, affords numerous species of Wood Sorrel, and among others the present one, which is distinguished for the largeness of its blossoms; they are of a fine yellow colour, and when expanded by the influence of the sun, make a very conspicuous figure in the green-house; it begins to flower early in April, and continues about two months in bloom, many flowering stems arising from the same root.

This species is of free growth, and increases plentifully by bulbs, which are produced on the crown of the root as well as on its fibres; these when the plant decays should be taken up, and two or three of the largest planted in the middle of a pot filled with a mixture of bog earth and rotten leaves, well incorporated; towards winter the pots should be placed in the green-house, or in a frame so secured as perfectly to keep out frost.

Toxicologists (says Dr. Taylor on Poisons, p. 523) have not enumerated these plants among vegetable poisons; they have been commonly treated as pot-herbs. Wibmer states that they have a slightly irritant action on the stomach. Mr. Hanks has reported two cases, in one of which very serious symptoms were induced in a child who had eaten common sorrel (*Rumex acetosa*). A child, ætat. 6, suddenly lost his appetite, complained of sickness and heaviness in the head, and soon afterwards fainted. When he recovered he was unable to stand, and vomited a quantity of greenish-coloured matter. Insensibility came on with convulsions of the extremities. The cause of his illness was not then suspected, and the patient continued to suffer for several days, complaining of soreness of the epigastrium, and pain extending from the fauces to the stomach. There was also great thirst, and he occasionally vomited green vegetable matter. He recovered under treatment in about ten days. In the second case the patient suffered chiefly from severe pain in the bowels. The symptoms were soon relieved by the action of an emetic—which in this, as in all other cases of vegetable irritant poisoning, is the appropriate remedy. (Med. Gaz. vol. xl. page 69).

It appears somewhat difficult to refer these effects to the small quantity of binoxalate of potash present in these plants, yet, as in other instances, the recent vegetable may have a more powerful action than the quantity of the poisonous salt actually contained in it, would indicate. In the first of the two cases it was remarked by Mr. Hanks that four leeches which were applied to the skin, dropped off dead. A similar fact has been observed in poisoning by oxalic acid. This gentleman refers to a case of recent occurrence in Bath, in which the plant proved fatal to a child. Sorrel was found in its stomach, the lining membrane of which was injected and diffusely tinged.

ANALYSIS.—The leaves and shoots of these plants admit of identification only by their botanical characters. If the quantity eaten be large, binoxalate of potash may be separated from the contents of the stomach by making a decoction. This must be filtered hot, as six-sevenths of the salt are precipitated from a hot solution by cooling.

“There is in Professor Kalm’s Travels in North America, an account given of a species of Sumach called the poison-ash. Of this tree you may have perhaps heard, as its noxious qualities are supposed to have suggested the many tales that formerly obtained belief respecting the upas-tree. The shadow of this tree was said to cast death or sickness upon all over whom it fell; and every living creature who unwisely wandered under it was reported to fall an almost immediate victim to its dangerous properties. Several species of Sumach are planted in England, but the *Rhus toxicodendron* will not, I believe, flourish in our country, although it has been successfully cultivated in France, and used there medicinally.

“An incision being made into the tree,” says the Professor, “a whitish-yellow juice, which has a nauseous smell, comes out between the bark and the wood. This tree is not known for its good qualities, but greatly so for the effect of its poison, which, though it is noxious to some people, yet does not in the least affect others; and therefore one person can handle the tree as he pleases,—cut it—peel off the bark—rub it, or the wood, upon his hands—smell it—spread the juice upon his skin, and make more experiments with no inconvenience to himself; another person, on the contrary, dares not meddle with the tree while its wood is fresh; nor can he venture to touch a hand which has handled it, nor even to expose himself to the smoke of

a fire which is made with this wood, without soon feeling its bad effects, for the face, the hands, and frequently the whole body, swells excessively, and is affected with very acute pain. Sometimes blisters arise in great quantity, and make the sick person look as if he were infected with the leprosy. In some persons the external skin or cuticle peels off in a few days, as is the case when any person has burnt or scalded any part of his body. Nay, the nature of some persons will not allow them to approach the place where the tree grows, or to expose themselves to the wind when it carries the effluvia or exhalations of this tree with it, without letting them feel the inconvenience of the swelling which I have just now described. Their eyes are shut up for one or two days together by the swelling. I know two brothers, one of whom could, without danger, handle the tree in what manner he pleased, whereas the other could not come near it without swelling. A person sometimes does not know that he has touched this poisonous plant, or that he has been near it, before his face and hands show it by the swelling. I have known some old people who were much more affected by this tree than a viper; and I was acquainted with a person who, merely by the noxious exhalations of it, was swelled to such a degree that he was stiff as a log of wood, and could only be turned about in sheets.

"I have tried experiments of every kind with the poison-tree on myself. I have spread its juice upon my hands—cut and broke its branches—peeled off its bark, and rubbed my hands with it—smelt it—carried pieces of it in my bare hands, and repeated all this frequently without feeling the baneful effects so commonly annexed to it; but I, however, once experienced that the poison of the Sumach was not entirely without effect upon me. On a hot day in summer, when I was in some degree of perspiration, I cut a branch of the tree, and carried it in my hand for about half an hour together, and smelt at it now and then. I felt no effects from it in the evening, but next morning I awoke with a violent itching of the eye-lids and the parts thereabouts. It ceased after I had washed my eyes for awhile with cold water, but my eye-lids were very stiff all that day. At night the itching returned, and in the morning when I awoke I felt it as ill as the morning before, and I used the same remedy against it. However it continued almost for a whole week together, and my eyes were very red, and my eyelids with difficulty recovered during that time."

The Professor adds that he never had heard that the effects of the tree were more lasting than a few days. In some places the tree is destroyed, that it may not injure those who are obliged to labour near it.

This Sumach, whose pernicious influence was indeed scarcely exaggerated by the accounts of the Upas-tree, is a native of Pennsylvania, New Carolina, and some other places both of the eastern and western hemispheres, and is described as a tall and beautiful tree.

The fragrance of flowers is a source of continual delight to all accustomed to seek their enjoyment in the open air, either of the field or the garden. It affords surely as plain a manifestation of the goodness of God towards us as may be evinced by any indication of the usefulness of plants; since it proves that it is the design of God that life should not only be supported, but enjoyed. James Montgomery has beautifully said that "Flowers are in the book of Nature what the words 'God is love' are in that of Revelation." Yet the poisonous effluvia that I have mentioned as proceeding from some plants, and the offensive scents emitted by others, may at first sight appear to be at variance with my remarks on the benevolence by which the usual operations of nature are directed.

With regard to the poisonous influence diffused on the air, I may remark that it is evidently designed as a warning that we may not eat the plant; that the poison itself is in many instances very useful in medicine, when judiciously administered; and that in many cases, where it appears to render no service to man, it is owing to his ignorance of the purposes to which it might be applied. Many new and interesting discoveries are daily occurring which should convince us, that in the application of poisons there is yet much for the investigations of other days to reveal.

The scent of the carrion plants may, as Sir James Smith observes, be agreeable to the Hottentots, in whose country they abound; and you will not consider this surmise improbable, when you remember that to the Chinese a dish of rotten eggs, however revolting to our tastes, offers a dainty repast. Even where it is impossible to account for fetid odours by these means, we must consider that they are so placed as that it is in our power to avoid them; and that they do not, like the various sweet plants with which our earth is covered, meet us at every step of our country walk. Above all, we must never forget that this world is not in the state in which it came out from the hand of God, when, having looked upon all the works which he had made, he pronounced them "very good." There were no poisons in the Garden of Eden, for death or sickness would never have entered there; and it was not until God had cursed the earth for man's transgression that it bore briars and thorns. Beautiful and pleasant to the eye and ear as is nature, even yet, retaining much to win our love and admiration of its beneficent Author,—it yet bears the traces of man's disobedience and consequent punishment.



Cuminum Cyminum.

CUMINUM CYMINUM.—CUMIN.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLATÆ.

Fig. (a) the seed.

THIS plant, which is the only species of *Cuminum* yet discovered, is thought to be the *Κυμινον* of Dioscorides. It is a native of Egypt and Ethiopia, but much cultivated in the islands of Sicily and Malta, from whence we are supplied with the seeds. It was cultivated in England in 1594, but our climate is not congenial to the growth of this plant. In its native soil it rises to the height of about nine or ten inches, "but I have never seen it grow more than four in England, where I have sometimes had the plant come so far as to flower very well, but never to produce good seeds." The root is annual, simple, and fibrous; the stalk is round, slender, branched, and often procumbent; the leaves are numerous, narrow, linear, pointed, grass-like, and of a deep green; the flowers are produced in numerous small umbels, which are usually composed of four radii, each supporting a partial umbel of the like number of flowers; both the general and partial involucre consist of three or four subulate unequal leaflets; the corolla is composed of five petals of a purple colour, unequal, bent inwards and notched at the apex; the filaments support simple anthers; the germen is ovate, large, and inferior; the two styles are minute, and terminated by simple stigmas; the fruit is ovate, and consists of two oblong, striated seeds, flat on the side by which they are united, and convex and striated on the other.

QUALITIES, &c.—Cumin seeds have a strong heavy odour, and a bitterish warm taste, accompanied with a slight aromatic flavour. They give out great part of their smell by infusion in water, but very little of their taste. In distillation with water, a considerable quantity of a yellow pungent oil rises, in the proportion of twelve ounces from twenty-five pounds of the fresh seeds. This essential oil has a strong ungrateful smell and flavour, like the seeds. Rectified spirit takes up both odour and taste, and yields, when evaporated, an extract containing the sensible qualities of the seeds.

MEDICAL PROPERTIES AND USES.—Cumin seeds are said to be carminative and stomachic; and from the large proportion of essential oil they contain, we should be led to suppose them equal, if not superior, to many of the umbelliferous tribe. But they are seldom given internally, and almost the only use to which they are applied is as an external stimulant in discussing indolent tumours.

Off.

The Seed.

Off. Pp.

Emplastrum Cumini, L.

You often walk into the country, and it is well for you that you do; "God made the country, but man made the town," said one who looked upon Nature with the eye of a lover and a poet. What can be more exhilarating than the breezes that blow upon you as you wander upon the hill? When can you gaze upon aught that shall present to your mind so many new and beautiful images, as when your eye rests upon the wild scenes of nature? Whether you look upon the soft green carpet at your feet, or watch the changing and pillowy clouds that pass over the azure sky: whether you lie among the wild flowers beside the rippling stream, or actively pursue your way through the wood amid the entangling branches,—all is beauty and delight. Even though the remembrance of the falling leaf and the fading flower should intrude, yet can you never forget that spring will again revisit the earth to stock it with loveliness, and that what to you shall appear in the season of winter to have perished will flourish again in renewed youth and beauty; an emblem of that more glorious spring which shall one day renew with fresh-born powers and splendour the frail bodies of those whom we mournfully number with the dead.

Those parts of Africa immediately under and about the torrid zone, are remarkable for several instances of plants of a prodigious size; but none can exceed the immense baobab (*Adansonia digitata*), which flourishes in those countries bordering the Gambia, and some other parts of Africa. This tree received its name from M. Adanson, a French naturalist, who first described it. This gentleman resided several years in Africa, and greatly contributed by his information to our knowledge of African botany.

The French have called this tree the calabash-tree, and named the fruit which it produces monkey's-bread; but the natives of the countries near the Senegal denote it by the appellation of boui.

We are struck with surprise and admiration when we read of the beautiful and useful banian-tree of warm climates; a tree whose frequent description must have made you acquainted with its extraordinary size and nature; yet the baobab exceeds even this tree in size; for, although its branches do not extend to so great a distance, the dimensions of its trunk are far greater than that of any other tree.

Time seems to have little effect upon the baobab. Ages roll over it, and it still preserves its strength of frame and youthful appearance. It is yet young while nations which have arisen since its shoot first rose from the ground are known only by their names and past history: and cities have originated, crumbled to dust, and been forgotten, while it has gradually been advancing to maturity. It possesses the faculty of living for many centuries, and not only do its leaves remain green and beautiful, but the heart of its wood is light and tender. Its immense trunk, which is often 100 feet in circumference, though attaining to the height only of thirty feet, has in its interior a great quantity of pith, and when a mouldiness commences, as it frequently does in the internal part of the tree, caverns of twenty feet high and as many in diameter, are formed in the pith. In these caverns are deposited the bodies of the musicians, and of those bards who are found in most uncivilised countries, and who wander from place to place reciting verses and tales which their rude imaginations have framed. Yet it is not, as you may suppose, from a love and reverence to what they might deem the remains of genius, that they give them a resting-place which a poet might deem so appropriate; it is because they fancy that their superior endowments must have been imparted by an evil spirit; and, though honouring and fearing these bards while living, they imagine that the presence of their dead bodies would defile the land and render it unfruitful, and so contaminate the sea as that the fish would perish.

Many are the purposes to which the baobab is applied by the negroes. They use the leaves for giving a flavour to their broth, and for seasoning their meats. The fruit, which is in shape something like a cucumber but much larger, is when ripe full of a pleasant acid substance, which when dried in the sun becomes of a pulpy and spongy nature, and is still nutritious. When the fruit is in this dried state its rind is quite black and highly polished.

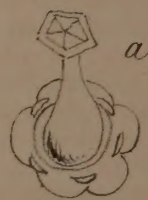
The Africans consider the fruit of this tree of great value as a remedy in many complaints, and as a preventive to indisposition in general. The negroes about Cape Verd possess the exclusive privilege of collecting the leaves and fruit of the baobabs which grow in that neighbourhood, and it is to the possession of this right, and their frequent application of its advantages, that the strength and courage for which they are remarkable are attributed by the Africans.

The blossoms of the baobab are extremely beautiful. They are of a bright white colour and immensely large. They spread open their surfaces as soon as the day has fully dawned upon them, and close again at the approach of night, so that they have, by a French naturalist, been called *belles de jour* (beauties of the day.)

The natives of Africa, though sunk in ignorance and accustomed to the daily sight of this phenomenon of nature, seem not so destitute of observation and natural taste as to behold it without interest; but, assembling in little groups during their season of flowering, they stand around the baobabs to await the rising of the sun; and as soon as the flowers, according to their own language, awake from their sleep, they address them with the words, "Good day, sweet lady!"

Not less remarkable than the tree which rises above, is the root which spreads its branches beneath, affording to the baobabs that firmness and support, without which the shock of one of the tempests, which in the course of ages must fiercely blow over its widely-extended surface, would level it with the dust. The central root is of an immense diameter, and extends below the ground to an unknown distance; though the depth of the root is generally supposed to be greater than the height of the tree. But when we consider the great extent of surface which is presented to the winds by the foliage and branches of this tree, we must perceive that this central root, however firm, would not alone have been enough to keep the tree upright. Very large fibres or branches, extending to the distance of 100 feet, and being often three feet in diameter, spread from the main root, and thus by this arrangement the baobab is enabled to resist the elements. In the valley of the Two Gagnacks, a place at some distance from the Gambia, M. Golberry, a French traveller, met with the largest tree of this kind that he saw throughout Africa. Its circumference was 104 feet, but the height of its trunk was not above thirty feet. Its branches extended in every direction, and were profusely covered with most beautiful foliage. The appearance of this astonishing tree was that of an arch, the surface of the baobabs being generally of a concave form. One part of the trunk of this patriarch of vegetation had been severed by the hand of decay, and presented an opening to one of those caverns before mentioned, of twenty feet high, which are formed by the pith.

"The entrance of this cavern," says our author, "was about seventeen feet high, and the negroes of the valley had given it a very regular form. The upper part was composed of two curved lines which formed an angle somewhat resembling the Gothic arches. On the two sides of this entrance were carvings of flowers and animals. The representations were indeed of an uncouth nature, but their very imperfection gave a kind of impressive effect which was felt on contemplating this antique monument, which was entirely the work of nature, except those savage ornaments which seemed to indicate an antiquity far more remote than the discovery of Africa by the Europeans. The negroes had also filled up the interior of the cavern, and, though they had left the rough and rugged forms which characterise such a place, they had nevertheless polished the surface, and in many places had carved the figures of men and animals."



Swietenia febrifuga.

SWIETENIA FEBRIFUGA.—FEBRIFUGE MAHOGANY-TREE.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, CEDRELEÆ.

Fig. (a) represents the germen in outline magnified; (b) the capsule.

THIS plant is a native of the East Indies, growing in the mountainous parts of the Rajahmundry Circar, north of Samulcotah and Peddapore. The tree was first brought to the notice of European practitioners by Dr. Roxburgh, who discovered that its bark was a valuable astringent and tonic in intermittent fever. It is cultivated with three other species in the botanical garden at Calcutta. The Telingas call it *Soymida*, but on the Coromandel Coast it is commonly under the name of Red-wood tree, which its Tamool name implies. It flowers about the end of the cold, or beginning of the hot season, and ripens its seeds three or four months after.

The Febrifuge Mahogany is a lofty tree, with a straight trunk of great thickness, and covered with a gray, scabrous, cracked bark. The branches are numerous, the lower ones spreading, the upper ascending, forming a very large shady head. The leaves are alternate and abruptly pinnate, about a foot long, composed of three or four pairs of opposite, petioled, oval, obtuse or emarginated leaflets, each from three to five inches long and from two to three broad, smooth, shining, the lower side extending a little further down the petioles than the upper side, and of a bright green colour. The flowers are very numerous, middle-sized, whitish, and inodorous, and disposed in racemes which rise from the axillæ of the upper degenerate leaves, and hence may form very large, terminal, diffuse panicles, furnished with small bractæas. The calyx is inferior, synsepalous, 5-cleft, oval, deciduous; the nectary formed by the union of the lower part of the filaments is scarcely half the length of the petals, and bellied. The petals are five, obovate, obtuse, concave, and expanding. The filaments are ten, very short, inserted just within the mouth of the stamiferous tube. The germen is conical, surmounted by a thick tapering style, crowned with a large targetted stigma, shutting up the mouth of the nectary. The capsule is large, ovate, and 5-valved, with the valves gaping from the top. The receptacle in the centre is large, spongy, and 5-angled, the angles being sharp and connected with the sutures of the capsule. The seeds are many in each cell, imbricated, obliquely wedge-shaped, and enlarged by a long membranaceous wing, inserted into a brown speck, on the upper part of the excavations of the receptacle. The albumen is fleshy, the embryo straight, and the cotyledons flat and foliaceous.

The generic name *Swietenia*, was given to this tree by Jacquin, in honour of the celebrated Baron Van Swieten, first physician to Maria Theresa of Germany, author of some botanical tracts, and well known by his voluminous Commentaries on Boerhaave's Lectures.

The wood of this tree is of a dull red colour, remarkably hard and heavy; it is reckoned by the natives the most durable timber with which they are acquainted; on that account it is used in the building of their temples, and for various other useful purposes. The wood of another species of this genus, the common Mahogany (*Swietenia mahagoni*) is perhaps the most majestic of trees, for though some rise to a greater height, this tree, like the oak and the cedar, impresses the spectator with the strongest feelings of its firmness and duration. In the rich valleys among the mountains of Cuba, and those that open upon the bay of Honduras, the mahogany expands to so giant a trunk, divides into so many massy arms, and throws the shade of its shining green leaves, spotted with tufts of pearly flowers over so vast an extent of surface, that it is difficult to imagine a vegetable production combining in such a degree the qualities of elegance and strength, of beauty and sublimity. The precise period of its growth is not accurately known, but as when large it changes but little during the life of a man, the time of its arriving at maturity is probably not less than two hundred years. Some idea of its size, and also of its commercial value, may be formed from the fact that a single log, imported at Liverpool, weighed nearly seven tons, was in the first instance sold for 378*l.*, resold for 525*l.*, and would, had the dealers been certain of its quality, have been worth 1000*l.* It is a native of South America and the West India islands; has an aromatic, agreeable smell; its excellency for domestic purposes is well known in England, and its bark has been said to possess similar medicinal powers to the *S. febrifuga*.

As is the case with much other timber, the finest mahogany trees, both for size and quality, are not in the most accessible situations; and as it is always imported in large masses, the transportation of it for any distance overland is so difficult, that the very best trees, both on the island and on the main land—those

that grow in the rich inland valleys—defy the means of removal possessed by the natives. Masses of from six to eight tons are not very easily moved in any country; and in a mountainous and rocky one, where much attention is not paid to mechanical power, to move them is impossible. In Cuba the inhabitants have neither enterprise nor skill adequate to felling the mahogany trees, and transporting them to the shore, and thus the finest timber remains unused.

The first mention of it is that it was used in the repair of some of Sir Walter Raleigh's ships, at Trinidad, in 1597. Its finely variegated tints were admired, but in that age the dream of El Dorado caused matters of more value to be neglected. The first that was brought to England was about the beginning of last century; a few planks having been sent to Dr. Gibbons, of London, by a brother who was a West India captain. The Doctor was erecting a house in King Street, Covent Garden, and gave the planks to the workmen, who rejected it as being too hard. The Doctor's cabinet maker, named Wollaston, was employed to make a candle-box of it, and as he was sawing up the plank he also complained of the hardness of the timber; but when the candle-box was finished, it outshone in beauty all the Doctor's other furniture, and became an object of curiosity and exhibition. The wood was then taken into favour. Dr. Gibbons had a bureau made of it, and the Duchess of Buckingham another; and the despised mahogany now became a prominent article of luxury, and at the same time raised the fortune of the cabinet-maker by whom it had been at first so little regarded.

In the earliest periods it was much used by the Spaniards in ship-building. When first introduced by them it was very dark and hard, and without much of that beautiful variety of colour which now renders it superior to all other timber for cabinet work; but it was more durable, and took a higher polish with less labour. At that time it was called Madeira wood, though it appears to have come from San Domingo (Hayti) and the Bahamas. Of course it was wholly unknown to the ancients. It was first introduced in the sixteenth century, but it was not generally used in England till the eighteenth.

QUALITIES.—The bark is brittle, compact, of a light red colour internally; externally it is covered with a rough grey epidermis. Its taste is very bitter and astringent, at the same time not in any way nauseous or disagreeable; it yields its virtues to water both by infusion and decoction, and forms an admirable tincture prepared after the same way as the Tinctura Cinchonæ. The wood yields an extract very similar to Kino, but it is bitter and less astringent.

MEDICAL PROPERTIES AND USES.—This bark, which was first recommended as a tonic by Dr. Roxburgh, has excited little attention amongst European practitioners, but in India it is highly prized by our army surgeons, who use it in all those cases which have been usually benefited by Cinchona. Mr. Breton, who published a paper on it in the eleventh volume of the Medico-Chirurgical Transactions, says, "In a number of cases of confirmed remittent bilious fevers (commonly called jungle fever), I have put this bark to the fairest possible test, and as success was uniformly the result of my repeated trials, I think I am warranted in concluding it to be an efficient substitute for the Peruvian bark. In common intermittent fevers, I have employed this bark very extensively, and with invariable success. I have also put this drug to the test of trial in three cases of gangrene and mortification, and in a case of suppurated liver; but as it was accompanied with auxiliaries, I cannot speak so positively of its actual efficacy in these instances. The uniform result, however, of so many experiments, satisfied my own mind that the *Swietenia febrifuga* answers every purpose of Peruvian bark in allaying irritability and restoring strength. I trust I shall not be accused of being visionary or enthusiastic, when I avow my own conviction, after having long employed this bark in every case where Cinchona is indicated, that it forms a completely efficient substitute for the American drug, and that time alone is required to extend the general conviction of its efficacy, which every succeeding experiment will assuredly impress."

In a letter from Dr. Roxburgh, which accompanies Mr. Breton's paper, he states his continued belief in its efficacy, and recommends the bark to be collected when the sap begins to ascend freely, at which period it separates readily. He also believes the small, or rather, middling-sized branches, to yield the bark best suited for medical purposes; and it may be used as soon as it is dry enough for powdering. Messrs. Cochrane, Cheese, Grant and Davidson, &c. have tried it very extensively in India, and confirm all that has been advanced in its favour; and they seem to agree in its being better retained in the stomach when in substance, and in greater quantities than Cinchona usually is. Dr. Ainslie also recommends it to the extent of four or five drachms in the twenty-four hours, as a very efficacious medicine; but beyond that quantity, in every instance in which he tried it, it appeared to derange the nervous system, occasioning vertigo and subsequent stupor.

DOSES.—Its dose in substance is from one to four, five, and six drachms a day.



Narcissus Angustifolius.

NARCISSUS ANGUSTIFOLIUS.—NARROW-LEAVED NARCISSUS.

CLASS VI. HEXANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, AMARYLLIDÆ.—THE NARCISSUS TRIBE.

FLOWERS solitary, cup of the nectary very short, membranous and notched at the edge, leaves bluntly keeled, with reflected edges. Flower pure white; the nectary edged with crimson; fragrant. Perennial; flowers in May; grows in dry open fields in England.

Under the name of *Poeticus* three different species of *Narcissus*, appearing perfectly distinct, though familiar in many respects, and regarded as such by the old botanists, viz.:

Narcissus albus circulo purpureo, v et vi.	} C. Bauh.
Narcissus albus magno odore flore circulo pallido,	
Narcissus pallidus circulo luteo	
Narcissus medio purpureus præcox.	} Park Parad.
Narcissus medio purpureus serotinus, ..	
Narcissus medio luteus vulgaris	

The first of these, the one here figured, is evidently the *poeticus* of Linnæus, judging by the authors to whom he refers in the third edition of his *Spec. Pl.* which are indeed few in number, and confined chiefly to *Baub. Pin.* and *Dodonæus*; of the second and third he takes no notice.

The two former ones of these have the greatest affinity, inasmuch as they both produce for the most part only one flower, of a white colour, having a very short nectary, edged with red; to both of these Linnæus's specific description is equally applicable, as well as the trivial name of *poeticus*, given them indiscriminately by several of the old botanists, some regarding the first, some the second, as the plant mentioned by Theocritus, Virgil, and Ovid; unfortunately both of them are found to grow in the same meadows, and have the same obvious appearances, it is therefore utterly impossible to say which of the two was the *Narcissus* of the poets; if we have the greatest difficulty in ascertaining what the plants were of the botanists of those times, how are we to discover what the poets meant, who with very few exceptions have been unpardonably inattentive to the appearances of nature. The term *Poeticus* is equally suitable to both.

Ovid, in his *Metamorphoses*, tells us of the fate of the lovely *Narcissus*. A thousand nymphs loved the handsome youth, but suffered the pangs of unrequited love. Viewing himself in the crystal fount he became enamoured of his own image.

For as his own bright image he surveyed,
He fell in love with the fantastic shade;
And o'er the fair resemblance hung unmoved,
Nor knew, fond youth! it was himself he loved.—OVID.

In consequence of this error he slighted the love of Echo, who witnessed his fruitless vows to the deceitful image. Addison thus translates the passage:—

She saw him in his present misery
Whom, spite of all her wrongs, she grieved to see;
She answered sadly to the lover's moan,
Sighed back his sighs, and groaned to every groan;
“Ah, youth! beloved in vain,” *Narcissus* cries—
“Ah, youth! beloved in vain,” the Nymph replies.
“Farewell,” says he; the parting sound scarce fell
From his faint lips, but she replied, “Farewell.”

Then on the wholesome earth he gasping lies,
Till death shuts up those self-admiring eyes.
To the cold shades his fitting ghost retires,
And in the Stygian waves itself admires.
For him the Naiads and Dryads mourn,
Whom the sad Echo answers in her turn!
And now the sister-nymphs prepare his urn;
When looking for his corpse, they only found
A rising stalk with yellow blossoms crowned.

The cup in the centre of the flower is supposed to contain the tears of *Narcissus*, to which Milton alludes; and Virgil in the following, where he is speaking of the occupations of the bees:—

“Pars intra septa domorum
Narcissi lacrymam, et lentum de cortice gluten,
Prima favis ponunt fundamina, deinde tenaces
Suspendunt ceras.”———VIRGIL, *Georgic 4.*

“Some within the house lay tears of daffodils, and tough glue from the barks of trees, for the foundations of the combs, and then suspend the tenacious wax.”—MARTYN'S TRANSLATION.

Thomson celebrates the sweetness of the *Narcissus*:

“No gradual bloom is wanting; from the bud,
First-born of Spring, to Summer's musky tribes;
Nor hyacinths, of purest virgin white,
Low bent, and blushing inward; nor jonquils,
Of potent fragrance; nor *Narcissus* fair,
As o'er the fabled fountain hanging still.”

THOMSON'S SPRING.

“*Narcissus*, drooping on his rill,
Keeps his odorous beauty still.”*

Virgil, in one passage in the fifth pastoral, speaks of the Narcissus as purple; and Mr. Davidson, in a note on that passage, observes that Dioscorides also speaks of a species of Narcissus which is purple:

“Pro molli violâ, pro purpureo narcisso.”

“In lieu of the soft violet, in lieu of the emurpled Narcissus.”—DAVIDSON’S TRANSLATION.

Several of them have a ring of purple:

“Bring rich carnations, flower de luces, lilies,
The chequed and purple-ringed daffodillies.”—BEN JONSON.

The narcotic odour of the Narcissus was known to the ancients, indeed its name is said to be derived from (*ναρκη*) stupor; and hence it was one of their funeral flowers. The smell of many is, however, exceedingly grateful; but in confined apartments their exhalations are reputed to be noxious. The bulbs of these plants abound more or less in farina, containing an emetic principle, which in some, as the *N. poeticus*, *N. Jonquilla*, &c. is predominant, that they were called *bulbi vomitarii* by the older herbalists. *N. odoratus*, *Pseudo-narcissus*, and *Tazetta*, have similar properties, and are administered on the continent in doses of five or ten grains to produce nausea, and thirty grains as an emetic.

The extract is the best form in which the active principle of the Narcissi can be exhibited medicinally. Two or three drachms of this preparation will destroy life in the course of a few hours. In doses of two or three grains it is regarded by some persons as almost a specific in whooping-cough. But Laennec says, in speaking of its effects in pertussis, “I have used this extract much, and have occasionally seen it effect surprisingly rapid cures; for instance, in five or six days; but this result is rare, and as a general remedy I find it much less efficacious than Belladonna.”

A watery extract of Narcissus [Dr. Taylor on Poisons, p. 512] administered to dogs was found by Orfila to cause vomiting and other symptoms of local irritation, followed by death. It acts upon the nervous system, as well as locally upon the mucous membrane of the stomach, which was found deeply reddened in some of the experiments.

* The lover of either the garden or the country landscape, cannot have failed to remark the effect of the seasons upon the gradual development of its leaves and blossoms. Each month has its peculiar floral ornaments; and although the warmth or the coldness of the atmosphere has an influence in accelerating or retarding, by a short period, the unfolding of flowers, yet each month is so far constant in its processes that we look with confidence for the plants which generally grace it. January has its snowdrops, and June its roses. In the coldest weather the laurustinus and Christmas-rose are blooming in our gardens, and the furze gives its lustre to the lone moorland. Then that “bonnie gem” the spring-daisy—the morning-star of the flowers—appears here and there, and the groundsel puts forth its yellow blossoms. The garden beds present the fair snowdrop, and the rich golden luxuriance of the crocus. The boughs of the mezezeon are clothed with lilac clusters; the hepaticas venture to unfold their small rose-coloured or blue flowers; the daffodils hang down their yellow cups; and the brilliant vases of the anemones are open to the vernal showers; and then follow the many lovely blossoms of spring and summer.

The trees, as they resume their foliage in the early part of the year, exhibit, each month, a greater richness and variety of colour. The young buds of the honeysuckle often unfold in January; the gooseberry and lilac about February; and the hawthorn is getting gradually covered during April, and preparing for its show of May flowers, while the lime is as yet scarcely producing a leaf. Then, when the lilac-tree is full, not only of its foliage, but covered with its flowery clusters, and the birch leaves quiver to the winds, the elm and ash open their young buds, and a small leaf or two appears here and there on their branches. The garden acacia remains many days longer before it shews one token of spring, and the summer foliage has lent a rich glory to wood and garden before one full green leaf decks the stately walnut tree.

It was the opinion of Linnæus that the agriculturist might be guided in sowing his grain by the leafing of trees, and several naturalists have agreed with him. The old proverb, often acted upon by farmers, is founded on a similar principle.

“When the sloe-tree is white as a sheet,
Sow your barley whether it is dry or wet.”

Mr. Templeton, in his Naturalist’s Report, thus remarks upon this subject:—“As plants vegetate according to the temperature which prevails, and flowers blow in a regular and never-varying order, we have certain means which can never fail, for directing us when to begin and leave off the various operations of husbandry and gardening. Should we therefore find, after a few years’ experience, that the best crops were uniformly produced when we sowed or planted at the time a particular tree or plant flowered, we have ever a sure guide, independent of astronomical revolutions, and can direct others to pursue the same plan in whatever country they are placed. Thus, if we have found that on sowing peas, or other seed, when the gooseberry flowered, they are ready for gathering when the corn-marigold flowered, we are pretty sure that each succeeding year the same uniformity will prevail.” It is well known that our ancestors named some months according to their natural appearances: thus February was termed Sprout-kale, and March, Stormy-month; and Mr. Loudon tells us that the Indians of America plant their corn when the wild-plum blooms, or when the leaves of the oak are about the size of the squirrel’s ears. The names of some of their months are also given according to their observations of vegetable changes. Thus, one is called by the poetical name of the budding-month, and one rather later is termed the flowering month; while the autumn is mournfully characterized by a word which signifies the fall of the leaf.



Acacia Catechu.

ACACIA CATECHU.—CATECHU, OR MEDICINAL ACACIA.

CLASS XXIII. POLYGAMIA.—ORDER I. MONÆCIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

PROFESSOR WILLDENOW, who established the genus to which the subject of the present article belongs, first separated it from the Linnean *Mimosa*, by the characters of the fruit. Under *Mimosa*, he leaves such species as have a *lomentum*, or legume, separating into single-seeded joints. Of these he defined thirty-two, but the list now exceeds seventy; and to many of them being sensitive, the name *Mimosa* is very appropriate. Willdenow enumerated a hundred-and-two species of *Acacia*, but since his time, the discoveries of modern travellers have augmented the catalogue, so that upwards of three hundred now are known. They are all shrubby, perennial plants, with the exception of two or three species, which are herbaceous.

The *Acacia Catechu*, called in the province of Bahar, *coira* or *caira*, grows in great abundance in most of the mountainous districts of Hindustan. It is a large shrub or tree, fifteen or twenty feet high, covered with a thick, scabrous, ferruginous bark, which is very red within, remarkably astringent, and somewhat bitter. The branches are round, spreading irregularly, and downy when young; the older ones beset with numerous pairs of small recurved spines, originating in the stipules. The leaves are placed alternately on the younger branches, and are composed of from fifteen to thirty pair of pinnæ, about two inches long, each having numerous linear leaflets, (often forty pair,) hardly a quarter of an inch long, covered with short hairs, and of a green colour. The common petiole is sometimes furnished with a few recurved prickles, and a small gland is placed between the bases of each pair of the pinnæ. The flowers are hermaphrodite and male; axillary, on slender cylindrical spikes, three or four inches long, hairy, stalked, and of a pale yellow colour. The calyx is tubular, hairy, and 5-toothed; the corolla of one piece, whitish, divided into five segments, and twice the length of the calyx. The filaments are numerous, crowned with roundish anthers, and united at the base with the germen, which is oval, supporting a slender style, and terminated by a simple stigma. The fruit is a straight, smooth, pointed legume, or pod, three or four inches long, and less than one broad, containing six or eight roundish seeds.

Catechu was formerly supposed to be an earth, found in Japan; and the name *Terra Japonica*, by which it is still designated occasionally, tends to perpetuate the error. Mr. Kerr, assistant surgeon to the Civil Hospital in Bengal, was the first to describe the catechu tree, in Vol V. of "Medical Observations and Enquiries," which contains also a very correct figure. He says, that it is one of the most common trees to be met with in the uncultivated mountains of Rotas, and Pallamow, which are districts of Hindustan, in the province of Bahar, westward of Bengal; and is frequent in many other parts of that country, in various soils. The following is the mode of preparing the Extract, as described by that gentleman:—

"After felling the trees, the manufacturer carefully cuts off all the exterior white part of the wood. The interior coloured wood is cut into chips, with which he fills a narrow-mouthed unglazed earthen pot, pouring water upon them until he sees it among the upper chips: when this is half evaporated by boiling, the decoction, without straining, is poured into a flat earthen pot, and boiled to one third part; this is set in a cool place for one day, and afterwards evaporated by heat of the sun, stirring it several times in the day; when it is reduced to a considerable thickness, it is spread upon a mat or cloth which has previously been covered with the ashes of cow dung; this mass is divided into square or quadrangular pieces by a string, and completely dried by turning them frequently in the sun, until they are fit for sale.

"This extract is called *cutt* by the natives, by the English *cutch*, by authors *terra Japonica*, *catechu*, *cadtchu*, *cashow*, *cachou*, *caitchu*, *caitjoe*, *cachore*, *kaath*, *cate*, &c. In making the extract, the pale-brown wood is preferred, as it produces the fine whitish extract; the darker the wood is, the blacker the extract, and of less value. They are very careful in drying their pots upon the fire before they are used; but very negligent in cutting their chips upon the ground, and not straining the decoction; by which, and the dirty ashes they use, there must be a considerable quantity of earth in the extract, besides what avarice may prompt them to put into it. This the learned have proved from their laborious chemical decompositions. The extract thus prepared, is bought from the manufacturer for twelve or fifteen shillings the eighty pounds weight. I could never learn that the *terra Japonica* was produced from the *areca* or *betel-nut*; nor is it indeed credible that it should, notwithstanding that this is the general and received opinion, for the *betel-nut* is scarce ever so low in price as the *terra Japonica*, and was it to be extracted from thence, the price would be twenty times dearer than the present sales. Where the *areca nut* is in great plenty, they may perhaps join some of the fruit in making the extract, to answer a double purpose, for the most frequent use of both is in chewing them together as Europeans do tobacco; to these two substances they add a little shell lime, and a leaf called *pauw*. Here I am obliged to have recourse to the natives, whom from experience I have found to be very fallacious, therefore I will not answer for their veracity.

"The extract is much used in dyeing and painting chintz, and other cloths; combined with vitriolic salts, a black colour is produced; mixed with oil, they paint the beams and walls of houses to preserve them, and to defend them from the destructive white ants; it is sometimes mixed with their wall plaster.

"The black physicians of this country divide the diseases of mankind, as well as their medicines, into hot and cold; to the cold disease they oppose a hot medicine, and to the hot disease a cooling medicine, among which last, this Extract is supposed to be very powerful.

"The extract is a principal ingredient in one of their ointments of great repute, composed of blue vitriol four drachms, Japan earth four ounces, alum nine drachms, white resin four ounces; these are reduced to a fine powder, and mixed with the hand, adding olive oil ten ounces, and water sufficient to bring the mass to the proper consistence of an ointment. This ointment is used in every sore, from a fresh wound. A gentleman (Mr. Robert Hunter, Surgeon to the Patna Factory) of great practice, told me, he used this ointment with success beyond expectation; and he remarks, that whether it is owing to the laxity of the solids in this hot climate, or to some other cause, he is clearly of opinion, that our greasy ointments have not the desired effect. Certain it is they avoid that *emphyreuma* which our ointments often receive in boiling which cannot be a promising application to a tender sore. As to the virtues of this Extract in European practice, I must be silent; they are already better described than I can pretend to do."

QUALITIES AND CHEMICAL PROPERTIES.—There are two kinds of this extract; one is sent from Bombay, the other from Bengal; but they differ from each other more in their external appearance, than in their chemical composition. The extract from Bombay is of a uniform texture, and of a red brown tint; its specific gravity being generally about 1.39. The extract from Bengal is more friable, and less consistent; its colour is like that of chocolate externally, but when broken its fracture presents chocolate and red-brown streaks. Its specific gravity is about 1.28. Their tastes are precisely similar, being astringent, but leaving in the mouth a sensation of sweetness. They do not deliquesce, or apparently change, by exposure to the air. Solutions copiously precipitate gelatine, and speedily tan skins. The strongest infusions of the two kinds do not differ sensibly in their nature or composition. Their colour is deep red-brown, and they communicate this tinge to paper; they slightly redden litmus paper; their taste is highly astringent, and they have no perceptible smell. The strongest infusions act upon the acids, in a manner analogous to the infusion of galls. Sulphuric and muriatic acids precipitate them. With strong nitrous acid they effervesce, and lose their power of precipitating solutions of isinglass and the salts of iron. The pure alkalis enter into union with their tannin, so as to prevent it from being acted upon by gelatine. Solutions of lime of strontia, and of barytes, poured into the infusions of catechu, produce copious precipitates. If carbonate of magnesia be added to the infusion, it loses its power of precipitating gelatine. The carbonates of potash, of soda, and of ammonia, also deprived them of their power of acting upon gelatine: though this power is restored by an acid. Solution of muriate of tin acts upon the infusion of catechu, in a manner similar to that in which it acts upon the infusion of galls. Both kinds of catechu are almost wholly soluble in large quantities of water; and to form a complete solution, about eighteen ounces of water, at 52°, are required to a hundred grains of extract. A considerable portion of both kinds of catechu is soluble in alcohol; but, after the action of the alcohol upon it, a substance remains, of a gelatinous appearance, and a light brown colour, which is soluble in water, and is analogous in its properties to gum or mucilage.

The peculiar extractive matter of the catechu, is much less soluble in water than the tanning principle; and when a small quantity of water is used to a large quantity of catechu, the quantity of tannin taken up is much greater than that of the extractive matter. The extractive matter is much more soluble in warm water than in cold; and when saturated, solutions of catechu are made in boiling water, a considerable quantity of extractive matter, in its pure state, falls down as the liquor cools. An aqueous solution of the extractive matter, when mixed with solutions of nitrate of alumine, and of muriate of tin, becomes slightly turbid. Nitrate of lead gives a dense brown precipitate. It is not precipitated by the mineral acids. Two hundred grains of Bombay Catechu, afforded 109 of tannin, 68 of extractive matter, 13 of mucilage, and 10 of sand, calcareous earth, and other impurities. The variety from Bengal gave, by a similar analysis, 97 of tannin, 73 of extractive matter, 16 of mucilage, and 14 of residual matter, and sand, with a small quantity of calcareous and aluminous earth, in two hundred grains.

MEDICAL PROPERTIES AND USES.—Catechu is largely employed in the East, medicinally; but especially when used with the *betel-nut*, for chewing, a practice almost universal over the Indian continent.

In this country it is extensively employed for all those disorders in which a mild, unirritating, powerful astringent is required; such as chronic diarrhoea and dysentery; hæmorrhoids, &c., and the Bombay catechu, as containing the greatest portion of tannin, is that which is best adapted for medicinal use. It is one of the most valuable medicines of the class, and may be advantageously used in all cases where we wish to restrain immoderate discharges, especially when not attended by inflammatory action, or produced by congestion. With this indication, it is usually combined with the bitter tonic and aromatic barks. It is also used in the form of troches, mixed with gum-arabic and sugar, to dissolve slowly in the mouth; and in this form it often much assists the clearness of the voice in persons that have occasion to speak long in public. As a topical astringent it is used in scorbutic affections of the gums, and aphthous ulcerations of the mouth and fauces. Dr. Thompson has found the slow solution of a small piece in the mouth, "a certain remedy for the troublesome cough induced by a relaxed uvula, hanging into, and irritating the glottis."

DOSE.—From gr. x. to ʒi. of the powder; or, ʒi. to ʒiij. of the Tincture

OFF. PREP.—Infusum Catechu, L. E. Tinctura Catechu, L. E. Electuarium Catechu compositum, E. D.

"The distilled water of the leaves of the *Acacia* contains prussic acid. The water has a strong smell of bitter almonds, and eight ounces of it, precipitated by nitrate of silver, yielded 4.15 grains of cyanide. The dried leaves gave no prussic acid on distillation."—[*Dr. Taylor on Poisons*, p. 719.]



Calendula Tragus.

CALENDULA TRAGUS.—BENDING-STALKED MARYGOLD.

CLASS XV. SYNGENESIA.—ORDER IV. POLYGAMIA NECESSARIA.

NATURAL ORDER, CORYMBIFERÆ.

THE derivation of *Calendula* is uncertain: some say it is from the Calends. In English the old name for these flowers is Golds, or Rudds. Golds, or Gouldes, is a name given by the country people to a variety of yellow flowers; and the name of the Virgin Mary has been added to many plants which were anciently, for their beauty, named after Venus, of which the Marygold is one: Costmary, the Virgin Mary's Costus, is another. The French name it souci du jardin [garden marygold]; in Provence they call it gauche fer [left hand iron]; perhaps from its round form, like a shield which is borne on the left arm, in contradistinction to the sword, used in the right. The Italians call it *calendula ortense*, *cappuccina*, *fiorrancio*, a corruption of *fiore arancio* (orange flower) and *fiore d'ogni mese*, or flower of every month; which latter name gives countenance to the derivation of *Calendula* from the Calends.

This species of Marygold, a plant not uncommon in our collections of greenhouse plants, is a native of the Cape, and was introduced by Mr. Masson in 1774. It flowers in May and June, and is raised with facility from cuttings.

The Field Marygold is a native of most parts of Europe, and differs but little from the Garden Marygold, except in being altogether smaller.

The Garden Marygold grows naturally in the vineyards of France, the cornfields of Italy, and the orchards, fields, and gardens of Silesia. It was esteemed for its dazzling splendour long before its uses were discovered: it is a common ingredient in soups; and is said, as the old authors express it, "greatly to comfort the heart and the spirits." It has also been recommended as a medicine, but has not obtained much reputation in this way. Formerly it was considered as a wholesome ingredient in salads, but there is an acrimony in the whole plant which has even caused it to be commended as a destroyer of warts. Infused in vinegar, the Marygold is supposed to prevent infection, even that of the plague itself; and, so infused, both the leaves and flowers are found a powerful sudorific. It is, however, very probable that the efficacy of the infusion, in cases of infection, is more in the vinegar than in the flower infused in it. It has been asserted that the sting of a wasp, or a bee, is effectually cured by rubbing the part affected with a Marygold-flower.

Linnæus has observed, that the Marygold is usually open from nine in the morning to three in the afternoon. The circumstance attracted early notice, and on this account the plant has been termed *solissequa* (Sun-follower); and *solis sponsa*, Spouse of the Sun.

There is an allusion to this daily closing of the Marygold in the poems of Chatterton:

"The mary-budde that shutteth with the light."

Another in the Pastorals of W. Browne:

"But, maiden, see the day is waxen olde,
And 'gins to shut in with the marygold."

And a most beautiful one in Shakspeare's Winter's Tale:

"The marygold, that goes to bed with the sun,
And with him rises weeping."

And again in Cymbeline:

"Hark! hark! the lark at heaven's gate sings,
And Phoebus 'gins arise,
His steeds to water at those springs
On chaliced flowers that lies.

And winking marybuds begin
To ope their golden eyes;
With every thing that pretty bin,
My lady sweet arise."

Chaucer compares the effect of joy upon a person in sorrow to that of the morning sun upon these very sun-loving flowers:

"But right as floures through the colde night
Inclosed stoupen in her stalke lowe,
Redressen hem ayen the sunne bright
And spreden in hir kindlie by rowe;
Right so began his eyen up to throwe
This Troilus."

Shakspeare says of a beautiful woman sleeping:

"Her eyes like marygolds had sheathed their light,
And canopied in darkness sweetly lay,
Till they might open to adorn the day."

Herrick entreats the Daisy—

"Shut not so soon; the dull-eyed night
Has not as yet begun
To make a seizure on the light,
Or to seal up the sun:
No marygolds yet closed are,
No shadows yet appear;

Nor doth the early shepherd's star
Shine like a spangle here.
Stay but till my Julia close
Her life-begetting eye:
And let the whole world then dispose
Itself to live, or die."

There are many varieties of the Garden Marygold; one of which, the Proliferous, called by Gerarde the Fruitful Marygold, is, as he says, "called by the vulgar sort of women, Jack-an-apes-on-horseback."

Although this Marygold is generally yellow, there is a variety with purple flowers. The Cape Marygolds, specifically so called, as well as some others, natives of the Cape, have a deep purple centre or disk; and the florets around it, which are called the rays of the flower, are of a violet colour without, and a pure white within.

These kinds, like our common Garden Marygold, open when the sun shines, and close in the evening, and in cloudy weather. Two of these, the Grass-leaved, and the Shrubby, are perennial plants: the others are annual.

The Garden Marygold, and the Great, the Little, and the Naked-stalked Cape Marygolds, may be sown in April or in March; the first singly; the others, four of them, or five, in a pot ten inches wide. If they all come up, the two most promising should be preserved, and the rest rooted out; they will not bear transplanting. The Grass-leaved kind is best raised by a gardener; and should be housed, but not kept too warm, in the winter. The Shrubby Marygold is increased by cuttings planted in any of the summer months, and shaded from the sun until they have taken firm root, which will be in five or six weeks. In winter, this must be treated as the last.

The Marygolds must not be suffered to remain dry, but must have but little water at a time. Most of them flower from June till August; but the Garden Marygold continues in bloom till stopped by the frost.

Madame Lebrun in one of her charming pictures has represented grief as a young man pale and languishing; his head appears to be bowed down by the weight of a garland of marygolds. All the world knows this gilded flower, which has been made the emblem of distress of mind; or rather, we should say of that inquietude which is caused by uncertainty as to the sentiments of the *one* we love with a peculiar affection. The lover longs to know whether there be a reciprocal feeling in the heart of his mistress towards himself, or whether he has been buoying himself up with false hope. We verily believe that there are few who would not prefer to receive the dread intelligence that his suit is rejected than remain in this uncertain state. Anon he speculates on the glance of kindness he thought she gave him as she passed, for as Byron says,

"Glances beget sighs,
Sighs wishes, wishes words, and words a letter,
Which fly on wings of light-heeled Mercuries,
Who do such things because they know no better."

It has been observed that these flowers were formerly called Golds, a name by which Chaucer repeatedly mentions them: we are told, in the glossary, that Gold means a Sun-flower, but it has been remarked that this title also was formerly bestowed upon the Marygold: and the following passage is an additional argument for supposing Chaucer to have intended this flower rather than the enormous Sun-flower now so called:

"Eke eche at other threwe the flouris bright,
The pymerose, the violete, and the gold."—COURT OF LOVE.

He also bestows a garland of them upon Jealousy, yellow being the colour emblematical of that passion:

— "and Jalousie,
That wered of yelwe goldes a gerlond,
And had a cuckowe sitting in her hand"—THE KNIGHT'S TALE.

It is rather an awkward circumstance, that the same flower should be emblematical both of jealousy and marriage. We learn from an old ballad, that

"Marygold is for marriage,
That would our minds suffice,
Lest that suspicion of us twain,
By any means should rise."

This flower should surely have been dedicated to Juno, the goddess of marriage, and certainly the most jealous of all beings, mortal or immortal.

The mournful signification of the marygold can be modified in various ways. United with roses it is the emblem of the sweeter pains of love; alone it expresses inquietude or ennui. Woven with other flowers it represents the inconstant chain of life, ever good and evil interwoven. In the East a bouquet of marygolds and poppies expresses this thought, "I will allay your pains." It is especially by these modifications that the sentiment of flowers renders the interpretation of our thoughts understood.

Margaret of Orleans, maternal ancestor of Henry IV., had for her device a marygold turning towards the sun, with these words, "*Je ne veux suivre que lui seul.*" That virtuous princess wished to express by this device that all her thoughts and all her affections turned towards heaven, as the marygold does to the sun.

During the months of July and August, the marygold emits small luminous sparks during the night. This quality it possesses in common with the nasturtium and many other flowers of the same colour.

The Marygold was at one time much employed as a carminative. Its use has, however, now become almost obsolete; and its chief consumption is to adulterate saffron, and by dairy-maids to give a rich color to their cheese and butter.



Rubia Tinctorum

RUBIA TINCTORUM.—DYER'S MADDER.

CLASS IV. TETRANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, STELLATÆ.—THE MADDER TRIBE.

Fig. (a), the flower magnified; (b), the calyx; (c), the pistillum; (d), the anther; (e), the fruit.

THIS species of Rubia is the *Ερενθοδανον* of Dioscorides. It is a perennial plant, a native of the South of Europe, the Levant, and Africa, flowering in June. It was first cultivated in this country by Gerarde, since which period its cultivation has become an object of national importance, from the immense consumption of the roots as a dye-stuff, by the calico printers and dyers.

The root of this plant is long, round, jointed, composed of succulent fibres, from which proceed numerous small thready side roots, which extend a considerable distance under the ground, and throw up many shoots, from which the plant may be propagated; the stems are procumbent, quadrangular, jointed, four or five feet in length, and covered with short hooked points, by which they adhere to the neighbouring plants for support, and subdivide into numerous branches, proceeding from the articulations; the leaves are placed in whorls, from four to six together, elliptical, pointed, rough, ciliated, and arise from the joints of the stems and branches; the flowers are small and terminal; the calyx is divided into four teeth; the corolla is of a yellow colour, campanulate, and cut at the brim into four ovate segments; the four filaments are short, and support simple erect anthers; the germen is inferior, double, supporting a slender style, dividing at the top into two globular stigmata; the germen becomes two round black berries, each containing an ovate seed.

The madder imported from Smyrna is more esteemed than the best Dutch madder, which ranks the first of that grown in Europe. The madder produced in the lower part of the Rhine is considered by Berthollet as not inferior to that of Zealand.

This is an adjective dye, but affords a permanent colour to cloth which a few days previously has been boiled for two or three hours in a solution of alum and tartar. Linen takes this dye with more difficulty than cotton. It is seldom used for silk, but is one of the most valuable dyeing drugs for a variety of purposes. It is an agent for dyeing many colours, and is therefore peculiarly adapted to the process of calico-printing, since by the use of different mordants, a variety of hues may be produced by immersion in the madder bath. One mordant in combining with it precipitates the colouring matter red, another purple, another black, and so of every possible shade from lilac to black, and from pink to deep red. If a portion of weld or quercitron be added to the madder, every shade from brown to orange may be produced. Tin, iron, and aluminous bases, as well as other mordants, are used for this purpose, dependant on the colour required. It is a matter of doubt and speculation with chemists whether these various colours are produced by the combination of the colouring principle of madder with the different mordants, by which a chemical change takes place, or whether several colouring matters are not really contained in the substance itself, and severally precipitated or retained by the varying action of the different agents to which it may be subjected. It is, however, certain that it contains at least two distinct colouring matters, a fawn and a red, and that the admixture of the former with the latter very much injures its clearness and beauty. In consequence of this, two kinds of red are obtained from madder. The first is simply called madder red, which contains the whole of the colouring matter. The other possesses far more lustre, and is much more valued; it is called Turkey red, because first obtained from the Levant. Its superior brilliancy is imparted in consequence of the red colouring matter being alone preserved; and while the tint communicated excels in brightness, it has the additional and great advantage of extreme durability.

The manner of producing this desirable effect was for a long period of time a subject of much interest and inquiry, the process used in Turkey being enveloped in mystery. The industry of the French artisans was stimulated by the interest which their government took in the discovery. Yet attempts at imitating this beautiful dye were long fruitless, and when at length they proved successful, this success was limited to one or two dye-houses. It was only by very slow degrees that it became more diffused, and then each individual who acquired the knowledge jealously guarded his own peculiar secrets which he had introduced in the process.

In 1804 the gold medal of the Society for the encouragement of Arts, &c. was voted to Sir H. C. Englefield, for his discovery of a pigment prepared from madder. He obtained a fine lake by many different processes, and found that the colour produced from the Smyrna was of a deeper and richer tint than any prepared from the Dutch madder. In pursuing his experiments he discovered that the colouring matter might be extracted from fresh madder, and thus not only all the expenses and difficulty attendant on the process for prepared madder might be avoided, but the cost of carriage would be one fourth less than for the roots; while separated from these the colouring matter might be kept for any length of time without danger of being spoiled. A further advantage would also arise in the quantity obtained, as *all* the colouring matter could be extracted; while in the manner which the dyers use the roots, a very considerable part of the colour is left in the refuse matter, and consequently wasted.

Mr. Field, in his valuable work "Chromatography," (page 179,) says—Superior red lakes are prepared from cochineal, lac, and kermes; but the best of all are those prepared from the root of the *rubia tinctoria*, or madder plant. Of the various red lakes the following are the principal:—

1. RUBRIC, or MADDER, LAKES. These pigments are of various colours, of which we shall speak at present of the red or rose colours only; which have obtained, from their material, their hues, or their inventor, the various names of rose rubiate, rose madder, pink madder, and Field's lakes.

The pigments formerly called madder lakes were brick-reds of dull ochrous hues; but for many years past these lakes have been prepared perfectly transparent, and literally as beautiful and pure in colour as the rose; qualities in which they are unrivalled by the lakes and carmine of cochineal. The rose colours of madder have justly been considered as supplying a desideratum, and as the most valuable acquisition of the palette in modern times, since perfectly permanent transparent reds and rose colours were previously unknown to the art of painting.

These pigments are of hues warm or cool, from pure pink to the deepest rose colour;—they afford the purest and truest carnation colours known;—from permanent tints with white lead; and their transparency renders them perfect glazing or finishing colours. They are not liable to change by the action of either light or impure air, or by mixture with other pigments; but when not thoroughlyedulcorated they are, in common with all lakes, tardy dryers in oil, the best remedy for which is the addition of a small portion of japanner's gold-size; or, as they are too beautiful and require saddening for the general uses of the painter, the addition of manganese brown, cappagh brown, or of burnt umber, as was the practice of the Venetian painters in the using of lake, adds to their powers and improves their drying in oils.

Notwithstanding they are equally beautiful and durable as water-colours, they do not work therein with the entire fulness and facility of cochineal lakes: when, therefore, permanence is of no consideration, the latter may still be preferred; but in those works in which the hues and tints of nature are to be imitated with pure effect and permanence, the rose colours of madder are become indispensable, and their powers in these respects have been established by experience from the palettes of our first masters during upwards of a quarter of a century. With respect to the future, too, there is this advantage attending these pigments, that they have naturally the peculiar quality of ultramarine, of improving in hue by time—their tendency being to their own specific prismatic red colour.

These pigments have been imitated on the Continent with various success, and in many instances by the lakes of lac, cochineal, and carthamus. The best we have seen is the *laque de garance*, the brightest of which was evidently tinged by the rouge of safflower, and proved inferior in durability to the genuine lake of madder. As, however, the colours of safflower, cochineal, and lac, are soluble in liquid ammonia and alkalis in general, which the true madder lakes or rubiates are not, the latter may be as easily tested by an alkali as ultramarine is by an acid; and if pure ammonia do not extract colour from a lake so tested, we may with general certainty pronounce it to be a true madder lake.

2. LIQUID RUBIATE, or *Liquid Madder Lake*, is a concentrated tincture of madder of the most beautiful and perfect rose colour and transparency. It is used as a water-colour only in its simple state diluted with pure water, with or without gum; it dries in oil by acting as a dryer to the oil. Mixed or ground with all other madder colours with or without gum, it forms combinations which work freely in simple water, and produce the most beautiful and permanent effects. The red of the definitive scale is of the pigments 1 and 2 combined. Liquid rubiate affords also a fine red ink, and is a durable stain which bears washing, for marking, painting, or printing on cotton or linen cloth, &c., and is peculiarly suited to the tinting of maps and charts permanently.

SENSIBLE AND CHEMICAL PROPERTIES, &c.—The roots of madder have a bitter and somewhat austere taste; the odour is not strong, but rather unpleasant; the infusion made with boiling water is of a deep reddish brown; to cold water, alcohol, and the essential oils, the roots impart a bright red colour. Both the taste and odour of madder is imparted to the watery and alcoholic infusions. The colouring matter of madder is precipitated of a brownish red, by a solution of alum; of a deep lake or blood red colour, by lime water and the alkaline carbonates; and brown, by acetate of lead. The colouring matter of madder roots appear to differ from most other substances used for the purpose of dyeing, in having the peculiar property of tinging with a red colour the milk and bones of those animals which have fed upon it; a circumstance which was first noticed by Antoninus Mizaldus, and subsequently by Mr. Belchier, who published an account of a pig and a cock, whose bones became red by eating madder mixed with their food; since which time (from various experiments that have been made) it has been ascertained, that the colouring matter affects the bones in a very short time, and that the most solid part of the bones first receives the red colour, which gradually extends through the whole osseous substance.

MEDICAL PROPERTIES AND USES.—Madder has been long regarded as a deobstruent, detergent, and diuretic, and more latterly as an emmenagogue. It has been chiefly used in jaundice, dropsy, and diseases proceeding from obstructions, particularly those of the liver and kidneys; but its efficacy in any disease scarcely warrants the encomiums that were formerly bestowed upon it. Its diuretic effects do not appear to be constant, and as an emmenagogue, its powers are neither uniform nor powerful. The roots of madder, when powdered, may be given in substance, in doses of from twenty to thirty grains three or four times a day; or in decoction, two ounces to a pint and a half of water, of which from one to three ounces may be taken three times a day.

Off. The Roots.



Monsonia lobata

MONSONIA LOBATA.—BROAD-LEAVED MONSONIA.

CLASS XVIII. POLYADELPHIA.—ORDER XI. DODECANDRIA.

NATURAL ORDER, GERANIACEÆ.—THE GERANIUM TRIBE.

THE genus of which this charming plant is the most distinguished species, has been named in honour of Lady Anne Monson. The whole family are natives of the Cape, and in their habit and fructification bear great affinity to the geranium.

Mr. Colvill was so obliging as to inform us, that he had succeeded best in propagating it by planting cuttings of the root in pots of mould and plunging them in a tan-pit, watering them as occasion may require; in due time buds appear on the tops of the cuttings left out of the ground.

It is a native of the Cape, and was introduced by Mr. Masson, in 1774. Flowers in April and May.

Have you ever reflected (says a celebrated author) on the desolate appearance which the earth must have presented, at that eventful period, when the Almighty caused a wind to pass over it, and the waters were dried up; or that the crust of the earth having been broken, lifted up and overturned in a thousand different ways, large masses of bare projecting rocks must have remained entirely destitute of vegetation; though undoubtedly a sufficient quantity of herbage was rapidly produced for the pasturage of cattle, in those situations where a deposition of mould enabled such seeds to germinate as had been left on the receding of the waters.

But how was it possible for the necessary quantity of earth to accumulate on the barren flanks of those precipitous rocks, which are now mantled with a luxuriant drapery of herbs and flowers, or clothed with large forest trees? By means of that gradual deposition of vegetable mould, which is occasioned by the decay of crustaceous lichens, those insignificant productions which encrust the walls of ancient buildings, and vary the faces of the rocks with their multifarious tintings. They grow in the most inaccessible and arid situations, are nourished by such supplies of moisture as the air and the rain afford; and their decay produces a small quantity of fine earth, on which the tiled lichens fix themselves. These, in their turn, become a thin and meagre soil, on which the seeds of mosses are deposited by the wind, that random sower, where they grow and produce a pleasant green turf, fit for the reception of smaller plants. Grasses and flowers then begin to spring, and are succeeded by shrubs and trees, till at length, after the lapse of many ages, extensive woodlands sometimes clothe the boldest and most precipitous descents. This curious result is particularly observable in one of the passes of the Alps, near Inspruck. The mountains on each side are nearly perpendicular; and the vast forests which grow from their sides, cast a dismal shade over the road; but when loaded in winter with a weight of snow, they appear ready to fall, and crush the traveller as he passes beneath.

The beautiful vale of Tempe, on the contrary, offers a pleasing instance of the fine effect produced by progressive vegetation. Towards the lower part of this enchanting spot, the cliffs are peaked in a very singular manner, and form projecting angles on the vast perpendicular faces of rock which they present towards the chasm. Wherever the surface renders such an effort possible, nature, according to the depth of mould produced by the decay of lichens and of vegetables, has covered the summits and the ledges of the rocks with small oaks, arbutus's, and flowering shrubs. Whilst every interval between the water and the cliffs, is deeply shaded by the rich and widely spreading foliage of the plane, oak, and other forest-trees, many of which have attained to a remarkable size, and extend their shadows far over the margin of the stream.

Thus are we indebted to the gradual progress of vegetation for some imposing, and many graceful varieties in nature. A bare and rugged rock may, in some situations, produce a grand, but never a beautiful effect; tinged with mosses and lichens, its sterile aspect disappears, and it becomes an object of interest to the painter and botanist; when its rugged sides are mantled with flowers and foliage, it acquires a considerable degree of beauty; but when clothed with a deep and ancient wood, it becomes, especially if reflected by a sheet of water, one of the sublimest objects connected with natural scenery.

In the mountainous regions of the globe, this gradation of vegetable life assumes a decided character, and varies in grandeur and luxuriance according to circumstances and situation, a gradation which is particularly observable in many parts of Switzerland and Norway. In the former, the vallies and lower parts of the mountains are beautifully enriched with corn-fields, vineyards, and meadows. To these succeed forests of larch and pine; next, short grass, with several species of herbs adapted to the pasturage of cattle; then, mosses and lichens; and lastly, bare, rugged, and frowning rocks, covered with eternal snow. M. Esmark, member of the Norwegian Council of Mines, has in a tour in Norway, made many interesting experiments in order to determine the boundary line of vegetation towards the regions of perpetual ice. For this purpose he ascended Schnechuttun. It was shrouded with snow, and at one point where a partial thaw had taken place, discovered twenty-five layers, each of them separated by a rind of ice. The surface of the snow resembled waves, and the hollows were of an amethyst colour, an appearance which is often remarked on the Alps. The boundary line of vegetation differed considerably on the sides of the mountain, as likewise the kind of trees and shrubs, according as they were capable of bearing a greater or less degree of cold. Fruit trees thrived and became productive, at the height of one thousand feet; barley and oats, in sheltered situations, from fifteen to eighteen hundred above the level of the sea. To these succeeded forests of pine, fir, and birch-trees, in regular gradations; higher up the mountain a few stunted birches, willows, and juniper trees were alone discoverable, and towards the frozen regions vegetation entirely disappeared.

Cryptogamous plants, in the northern parts of the temperate zone, are the first that cover the stony surface of the globe; these humble plants peep forth from beneath the snowy mantle which envelopes them, and are succeeded by other vegetable productions. On the borders of the torrid zone, and in the countries between the tropics, or approximating to them, the order of vegetation considerably varies, there, as in the Canary islands, Guinea, and on the rocky coasts of Peru, the pioneers of Flora's kingdom are the succulent plants, the pores of which, provided with an infinite number of orifices and cutaneous vessels, deprive the ambient air of the water which it holds in solution. Fixed in the crevices of volcanic rocks, they form the first layer of vegetable mould with which the currents of lava are encrusted, but when these lavas are scorified and retain a shining surface, as in the basaltic moulds of the north of Lanzarotta, the unfolding of vegetation is extremely slow, and ages roll away before shrubs and trees are enabled to take root. When, on the contrary, volcanic islands are covered with ashes and scoria, they lose the appearance of desolation which mark their origin, and robe themselves with a rich and brilliant covering.

The island of Teneriff exhibits five zones of plants, those of vines, laurels, pines, shrubs, and grasses. These zones are arranged in stages one above the other, and occupy, on the steep declivity of the Peak, a perpendicular height of one thousand seven hundred and fifty toises, while fifteen degrees farther north, on the Pyrenees, the snows already descend to thirteen or fourteen hundred toises of absolute elevation. If the plants of Teneriff do not reach the summit of the volcano, it is not because the perpetual snows, and the cold of the surrounding atmosphere, lay down limits which they cannot pass; it is the scorified lava of the Malpays, the powdered and barren pumice stone of the Piton, which offer insurmountable barriers to the vegetable tribes, and imperiously forbid their further migration towards the brink of the crater.



Pistacia Terebinthus.

PISTACIA TEREBINTHUS.—CHIAN TURPENTINE TREE.

CLASS XX. DICEIA.—ORDER V. PENTANDRIA.

NATURAL ORDER, MACARDIACEÆ.—THE CASHEW TRIBE.

THIS tree affords the Chian, or Cyprus Turpentine. It is a native of the south of Europe and the north of Africa. It is cultivated in the islands of Scio, (the Chios of the ancients,) and Cyprus, and has been long known in this country as an ornamental plant. There is a fine tree in Chelsea Garden, near the gate, from which the accompanying figure was designed.

The *Pistacia Terebinthus* is a tree of low stature, seldom attaining the height of thirty or thirty-five feet. The trunk and branches are invested with a dark grey or rugged blackish bark, and bent in all directions. The leaves are pinnate, and consist of three pair of ovate-oblong, entire, smooth leaflets, with an odd one, all of a dark green colour, and somewhat curved backward. They are, in our climate, deciduous, and according to Sir James Ed. Smith appear by Dr. Sibthorpe's drawings, to be so in Greece. The young leaves have a beautiful reddish hue, and are thin, smooth, and shining. The flowers, which appear in May and June, are on different trees, in large, very compound panicles. In the staminate ones the calyx consists of one leaf, and is divided into five deep equal segments. There is no corolla. The filaments are four or five in number, capillary, very short, and supporting large, brown, erect, oblong quadrangular anthers, of two cells bursting lengthwise. The pistilline flowers are placed on a common peduncle in alternate order, consisting of a calyx in three small squamous segments, and a roundish somewhat triangular germen, supporting three erect styles, with obovate, reflexed, clubbed stigmas. The fruit is a drupe, scarcely bigger than a large pea, ovate, smooth, a little compressed, and of a reddish colour. Galls of the same shape are found on the leaves, and very large pod-like ones, are often produced from the young branches, as the figures of the older botanists represent.

Cyprus or Chian turpentine, which is furnished by this tree, is procured by wounding the bark of the trunk in several places, during the month of July, leaving a space of about three inches between the wounds; from these the turpentine exudes and is received on stones, upon which it becomes condensed by the coldness of the night, so as to admit of being scraped off before sunrise. To free it from extraneous substances, it is again liquefied by the sun's heat, and pressed through a strainer, when it is fit for use. The quantity produced is so very inconsiderable, that large trees, sixty years old, are said to yield on an average only two pounds nine ounces and six drachms a piece; but in the eastern part of Cyprus and Chio, the trees afford somewhat more, though still so little as to render its price high, on which account it is much adulterated with the other turpentines.

QUALITIES.—The best Chio turpentine is generally about the consistence of thick honey; is very tenacious, clear, and almost transparent; of a white colour inclining to yellow, and of a fragrant smell; moderately warm to the taste, but free from acrimony and bitterness.

"*Volatile Oils*," says Mr. Field, [Chromatography, p. 370], "procured by distillation from turpentine and other vegetal substances, are almost destitute of the strength of the expressed oils, having hardly more cementing power in painting than water alone, and are principally useful as solvents, and media of resinous and other substances introduced into vehicles and varnishes. In drying they partly evaporate, and partly by combination with oxygen form resins, and become fixed. They are not, however, liable to change colour like expressed oils of a drying nature; and, owing to their extreme fluidness, are useful diluents of the latter: they have also a bleaching quality, whereby they, in some degree, correct the tendency of drying and expressed oils to discolourment. Of essential oils, the most volatile, and nearest in this respect to alcohol is the oil of Sassafras, but that most used in painting is the *Oil of Turpentine*; the rectified oil, improperly called Spirit of Turpentine, &c. is preferable only on account of its being thinner, and more free from resin. By the action of oxygen upon it water is either generated or set free, and the oil becomes thickened, but is again rendered limpid by a boiling heat upon water, in which the oxygen and resin are separated from it. When coloured by heat or otherwise, oil of turpentine may be bleached by agitating some lime powder in it, which will carry down the colour."

MEDICAL PROPERTIES AND USES.—The writings of Dioscorides, Pliny, and Aretæus, prove that the ancients admitted all the varieties of the turpentines into their materia medica. The first-named author, in his second book, classifies them as moist and dry. Pliny adopts the same arrangement; and both enume-

rate very fully the different species from which each variety is obtained. "Summæ species duæ, sicca et liquida. Sicca é pinu et picea: liquida è terebintho, larice, lentisco, cupresso." This enumeration accords very nearly with that of Tœniæ; by giving two ounces at a time, and repeating it in ounce doses if necessary; purging is generally produced, and the worm is usually evacuated lifeless. Its operation on the bowels, says Dr. Murray, as a cathartic in these large quantities, seems to prevent its absorption, and therefore obviates its action on the organs; and it has been stated in conformity to this, that the action, giving rise to strangury, is more likely to happen from small than large doses. Analogy leads to the employment of the same remedy, for the expulsion of other worms, and in some cases *lumbrici* have been expelled. It has also been employed under the form of enema, half an ounce being diffused in mucilage, or in water, by the medium of the yolk of an egg. The nauseating effect on the stomach is thus avoided, but this mode is frequently productive of pain.

Externally it is also employed as a rubefacient; and, what is very curious, if applied to the skin of a horse, dog, cat, and some other animals, it acts like scalding water, blisters the skin, and produces intense pain.

Its most important use, however, as a topical application is, as a remedy for extensive burns and scalds, when recently inflicted. Dr. Kentish, of Newcastle, appears to have been the first to introduce the oil of turpentine; and has published several cases, in which it was employed with the most beneficial effect. In applying this remedy, the great object is to avoid the *cooling process of evaporation*, and we are directed to proceed in the following manner; the injured parts are to be bathed two or three times over with the oil, or with spirits of wine, which answers the same purpose, heated by standing in hot water. After this a liniment, composed of the unguentum resinæ, softened with oil of turpentine, (*Linimentum terebinthinæ*), is to be spread on soft cloth, and applied. This liniment is to be renewed only once in twenty-four hours, and, at the second dressing, the parts are to be washed with proof spirits. When the secretion of pus takes place, milder applications must be had recourse to, till the cure is effected. During the use of the turpentine it is of the utmost importance that the injured surface should be left uncovered as little as possible; it is therefore recommended to let the fresh plasters be quite ready before the old ones are removed, and then only to take off one piece at a time. When the inflammatory action has somewhat abated, the exciting means should also be diminished, and warm proof spirits or laudanum, may be substituted for the oil, and the unguentum resinæ flavæ is to be mixed with oleum camphoratum instead of turpentine. If this should be found too irritating, Dr. Kentish recommends ceratum plumbi acetatis, or the common calamine cerate. When this mode of treatment is adopted, æther or alcohol, and other stimulants, with opium, are to be immediately given in proportion to the degree of injury, and repeated as circumstances may require. In slight burns, in which the action of the part only is increased, he has not found any thing better for the first application than the heated oleum terebinthinæ and ceratum resinæ thinned with the same.

"*Oil of Turpentine*.—This very common liquid," says Dr. Taylor, [on Poisons, p. 528,] "which is so easily identified by its powerful odour, does not appear to exert any strong action as an irritant poison. It is often given with impunity in large doses to young children as a vermifuge. In the following case, reported by Dr. Evans, an infant, æt. fourteen months, swallowed four ounces by mistake, and recovered. The child was found two hours after the occurrence in a comatose state, pulse 130, tunica conjunctiva injected, pupils dilated, eyes watery, face flushed, breathing hurried—strangury, bowels painful, particularly along the course of the spermatic vessels. He was ordered an emetic of ipecacuanha. Vomiting was soon excited, and briskly kept up by tepid water. The contents of the stomach had a strong odour of turpentine. After the operation of the emetic, cold was applied to the head, and flannel cloths wrung out of hot water, to the epigastrium. At 6 p.m., ten hours after the accident, he was much improved, was quite lively, pulse 120; had passed eight small worms. On the following day he was decidedly better, slept well during the night; slight pain in the bowels on pressure. Castor-oil was given. From this time he improved daily, suffering only from a little excitement about the brain, and in four or five days he had perfectly recovered. (Brit. Amer. Journ. of Med. and Phys. Science, Nov. 1846.) The treatment contributed to recovery in this case. When this poison has been swallowed, it will be indicated by the odour of the breath.

"Although I believe there is no case on record of the destruction of life by oil of turpentine, it may excite a violent irritating action on the kidneys, tending to strangury. It may also cause hypercatharsis. The oil can hardly be called a poison, yet it may in some instances seriously affect the constitution.

"*ANALYSIS*.—Oil of Turpentine would be sufficiently identified by its odour and inflammability. The fact of poisoning by it would be indicated by the odour in the breath, &c.

"Another kind of turpentine, the Balsam of Copaiba, has been known to cause serious symptoms. Half an ounce was administered to an adult as an enema. This was soon followed by pain in the stomach, vomiting, and general uneasiness. The man had convulsions, and for three days he was unable to speak. He slowly recovered. (Brit. and For. Med. Rev. xvii. Jan. 1840, 268.)"



Cardamine Pratensis.

CARDAMINE PRATENSIS.—CUCKOW FLOWER.

CLASS XXV. TETRADYNAMIA.—ORDER II. SILIQUOSA.

NATURAL ORDER, SILIQUOSÆ.

GEN. CHAR. *Pods* opening elastically, with revolute valves. *Stigma* entire. *Calyx* somewhat gaping.

SPEC. CHAR. *Leaves* pinnate. *Pinnæ* of the radical leaves roundish, dentated, or irregularly angular. *Pinnæ* of the stem leaves lanceolate.

THIS species of Cardamine (*Σισυμβρίον ἰστρον* of Dioscorides,) is indigenous to Britain, common in moist meadows and pastures, producing its flowers in April and May; it thrives best in shady situations. In the colour of its blossoms it is subject to much variation, they are usually white with a slight tinge of purple.* It probably acquired its common English name of Ladies-smock, from the white appearance which its blossoms give to the meadows where it abounds, resembling linen bleaching on the grass: a practice very general formerly, when most families spun and bleached their own linen; and that of cuckow flowers, from their blowing early in the spring. Old Gerarde says of it, "It flowers when the cuckowe doth begin to sing her pleasant notes without stammering." This plant also gives name to one of our most beautiful species of butterfly, the *Papilio Cardamine*, or orange-tip butterfly of Linnæus, the caterpillar of which feeds upon it.

The root is perennial, branched, and sends off many long, round fibres; the stalk rises about nine or ten inches high, upright, round, or very slightly angular, smooth, and a little branched towards the top; the radical leaves are frequently imperfect or altogether wanting; when present, spreading in a circular form, pinnated, the pinnæ roundish, slightly and irregularly angular, and stand upon very short petioles; the leaves upon the stem are erect, and consist of several pair of pinnæ, with an odd one; the pinnæ are opposite, spear-shaped, concave, pointed, and of a bright green; the flowers terminate the stem in a corymb; the peduncles are smooth and round; the calyx a perianthium, deciduous, composed of four leaves, which are oval, obtuse, membranous at the edge, hollow, and the alternate one gibbous at the base; the corolla is cruciform, the petals are inversely ovate, white, or very pale purple, veined, slightly emarginate, claws of a yellowish colour; the filaments are six, four long and two short, bearing small, oblong, incumbent yellow anthers, and invested at their base with four nectarious glands; the germen is round, slender, about the length of the filaments; style very short; stigma globular; seed vessel a cylindrical pod of two valves, about an inch in length, which opens elastically when the seeds are ripe, and rolls back in a spiral form; the seeds are numerous, round, somewhat flat, and of a yellowish colour.

We are told by Miller, that there are four varieties of this species of cardamine, viz., the single blossom, with white and purple flowers, and the double flower of both colours. These varieties are frequently intermixed in the same meadows. The leaves of this plant are gathered by the country people and eaten as salad, and was formerly called Bitter-cress.

SENSIBLE QUALITIES. This plant has the same sensible qualities as water-cress; every part of the plant is inodorous; its taste is slightly bitter and pungent. A decoction of the flower is bitter.

MEDICAL PROPERTIES AND USES. The officinal part (the flowers,) was first brought into notice as an anti-spasmodic, on the authority of Sir George Baker, who read a paper in the year 1767, at the London College, recommending these flowers as a remedy in convulsive disorders. In this account Sir George relates five cases wherein the flowers were successfully used, viz., two of chorea sancti Viti, one of spasmodic asthma, one of hemiplegia, accompanied with convulsions on the palsied side, and a case of remarkable spasmodic affections of the lower limbs; the two first were cured in less than a month; the two second were also happily restored, but in the last case the patient had only experienced some relief from the flowers, when she was seized with a fever which proved fatal. In the *Manuel Médecine Pratique*, &c. a case of in-

* This plant has occasionally been seen with double blossoms.

cus is related by Dr. Odier, of Geneva, in which the flowers of cardamine proved efficacious after several other anti-spasmodic medicines had failed. We are told by Greeding, who exhibited it in large doses, that he experienced but one instance of its good effects out of a great number of cases. At present they are seldom used. They are said to be slightly diuretic and diaphoretic, but have otherwise little sensible operation. The leaves were formerly considered antiscorbutic. The dose of the flowers when dried and powdered, is from half a drachm to two drachms, given from two to four times in the twenty-four hours.

Off. The Flowers and Leaves.

April is full of the beauteous evidences of Spring. March has enough of them to make us grateful, but April, with her profusion of white and green, of her songs, and her bright little wings, confirms the promise. She may be said to have four charming manifestations of nature's wealth to herself,—the blossoming of the fruit trees, and leafing of the trees in general, the return of the singing birds, and the re-appearance of the butterflies. She is the elder and slenderer sister of May, dressed in more virgin apparel, and her fingers are dabbled with wet; but her colder cheek has still a bloom on it, and she prepares the country for her buxom sister with a world of good will.

"I never walk abroad at this season of the year, without feeling a sort of silent rupture in observing the gradual progress of vegetation; and fancying that every thing around me is susceptible of happiness.

"The productions of the vegetable kingdom excite in many but little interest, and they even deem them beneath the consideration of a philosophic mind. Yet the flowers of the earth can raise our thoughts to God, as effectually as the stars of heaven. He is their Creator, and surely nothing which he has made is undeserving the attention of a finite being.

"The rapid or gradual unfolding of a leaf, or flower, is scarcely less wonderful, when properly considered, than the formation of a world. 'Let there be light,' said the Eternal, 'and there was light.' He commanded 'that the earth should bring forth grass, the herb yielding seed after its kind, and the fruit-tree yielding fruit; and it obeyed him.' Each was affected by the fiat of Omnipotence; and shall man, weak man! to-day crawling on the earth, to-morrow consigned to oblivion, carelessly or scornfully disregard the minor wonders of creation,—the flowers of the field! They are beautiful, and infinitely varied; they have neither voice nor sound, yet they silently proclaim the guardian care of their Creator. Who can fully comprehend the skill with which they are contrived, for the hand which made them is divine! What art can imitate their tints and delicate proportions; for though they toil not, neither do they spin, Solomon in all his glory was not arrayed like one of them!

"The celebrated Herschel has conjectured that new worlds are continually forming, and he founds his opinion on the different aspects, and annually changing condensation of the nebulae; some of them having gradually become less extended, till nuclei were formed in the midst, and assumed the appearance of fixed stars. This overpowering idea fills the mind with silent awe; yet the progress of vegetation continually proceeds around us, without exciting sentiments of either surprise or admiration: it is on our right hand and on our left, before us and behind us; but we perceive, or rather we regard it not.

"But wandering oft, with brute unconscious gaze,
Man marks not God, marks not the mighty hand,
That, ever busy, wheels the silent spheres;
Works in the secret deep; shoots, streaming, thence,
The fair profusion that o'erspreads the spring:
And, as on earth this grateful change revolves,
With transport touches all the springs of life.'

"Virgil has elegantly given to the vernal season the epithet of blushing, as the shoots and buds of trees assume a ruddy appearance previously to throwing out their leaves. This is particularly observable in the beech. Nothing can be more striking than the effect produced by this interesting tree, when the bright blue sky, unbroken by a cloud, is seen through the waving branches, spangled with buds of various kinds; some of a light bronze colour, others clothed with silvery down, whilst here and there a light green leaf is just beginning to appear.

"The gradual formation and expanding of a leaf is one of the most beautiful processes in nature. It has been investigated with the assistance of a solar microscope, and is described by Mrs. Ibbetson, whose elaborate researches are well deserving of attention."



Arbutus Uva Ursi.

ARBUTUS [ARCTOSTAPHYLOS] UVA URSI.
TRAILING ARBUTUS; OR, RED BEAR-BERRY.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, ERICEÆ.—THE HEATH TRIBE.

Fig. (a) represents the calyx; (b) a flower cut open to show the stamens; (c) a stamen, with its anthers; (d) the berries; (e) a berry divided transversely, to show the seeds.

THIS pretty evergreen shrub is met with both in the old and new continents; for, in the northern parts of Europe, it abounds in Sweden, Lapland, and Iceland; it is extensively diffused over Scotland and the north of England, and extends southerly to the shores of the Mediterranean. It is also found in Siberia, and is represented as abundant on the banks of the Wolga; while in North America it grows from Hudson's Bay, as far south as the central parts of the United States.

With us, it occurs only in dry, stony, subalpine moors, covering the ground with beds of considerable extent, at the height of 1,500 feet and upwards above the level of the sea. It is common throughout the Highlands, and Western Islands of Scotland, and abounds at Dunkeld and Blair, the seats of the Duke of Athol, in Perthshire.

The root is perennial, long, and fibrous; sending off several round, woody, branched, spreading, procumbent stems, covered with a smooth deciduous bark. The leaves are not unlike those of the Box, alternate, evergreen, obtuse, ob-ovate, entire, attached by short stalks, coriaceous, smooth, convex, dark green, and wrinkled above; concave, finely reticulated and paler beneath, with the margin rounded, and in the young ones pubescent. The flowers which are produced in June, grow in small clusters at the extremity of the branches, each supported on a short red footstalk, and furnished with many acute coloured bracteas. They are usually five or six on each branch, drooping, and of a rose-red colour. The calyx is small, obtusely 5-toothed, and persistent. The corolla is ovate, smooth, transparent at the base, contracted at the mouth, with five short reflexed segments. The filaments are awl-shaped, downy, inserted at the base of the corolla, and crowned with reddish incumbent anthers, of two oval cells, opening by two terminal pores, and bearing a pair of short horns or spurs. The germen is roundish, bearing a cylindrical erect style, the length of the corolla; with a simple stigma. The fruit is a small, globular, smooth, depressed scarlet berry, containing a mealy pulp of an austere taste, and four or five angular seeds.

The plants of this genus are very nearly allied to those of the *Vaccinium*, or Whortle-berry, from which they differ principally in the situation of the berry, which in the *Arbutus* grows above the calyx; and in the *Vaccinium* below it. The present species may be distinguished from the *Arbutus alpina*, or Black Bear-berry, by the figure of the leaves, which in the former are smooth, and entire, while in the latter they are rugged, and serrated.

QUALITIES AND CHEMICAL PROPERTIES.—The leaves of this plant, which are the parts used in medicine, are slightly bitter, and astringent to the taste. The result of Dr. Bigelow's chemical trials with them, shows that they abound in tannin. A solution of jelly occasioning a copious precipitate; sulphate of iron an equally copious one of a black colour. Nitrate of mercury gives a precipitate of a light green colour: lime-water, of a brownish colour. The existence of gallic acid is somewhat problematical; and the quantity of resin, mucous matter, and extractive, provided they reside in the plant, must be minute; since the decoction is not rendered turbid by the addition of alcohol, or ether, nor the tincture by the addition of

water. Muriate of tin produced no precipitation from the decoction, though it did from the tincture. Acetate of lead, and nitrate of silver, gave large precipitates. Water takes up a larger portion of soluble matter than alcohol, and may therefore be considered the best menstruum. Professor Murray, of Gottingen, prefers the decoction to the infusion for medical purposes.

MEDICAL PROPERTIES AND USES.—The *Arbutus Uva-ursi* is supposed by Clusius to be the *αρκτον σταφυλη* of Galen, celebrated by him as a remedy in hæmoptysis, and described as follows; “*Uva-ursi in Ponto nascitur, planta humilis et fruticosa, folio Memæcyli, fructum ferens rubrum, rotundum, gustu austerum.*” But this description is too imperfect to satisfy us as to the identity of the plant.

As a diuretic, *uva-ursi* has been employed for calculous affections, especially when attended by purulent discharges. De Haen speaks very favourably of it in such cases; and as it has a tendency rather to decrease arterial action, than to augment it, it may be exhibited in almost every state of the system, and in nearly every variety of diseases. To its great efficacy in some of these affections, Ferriar gives his decided testimony. “I have,” says he, “given this medicine in a considerable number of nephritic affections in very moderate doses, and always with manifest advantage. When the pain is very acute, and the pulse quick, I begin the cure with bleeding, and a gentle purgative composed of manna, and neutral salts. This purgative I repeat twice a week, and on the intermediate days direct the patient to take five grains of the *uva-ursi*, and half a grain of opium, three or four times a day, according to the urgency of the symptoms. This method always relieves, and generally effects a cure. Of sixteen patients treated in this manner, I have discharged twelve cured. On reckoning the cures, I do not rest on the cessation of a single fit, but require a permanent relief from pain. Many of my patients have used this remedy for several months together, before this end was attained. The fits became slighter, and at length ceased.”

Conjoined with soda it is an admirable remedy for catarrhus vesicæ and for strangury, arising from blisters. It is frequently resorted to for diabetes, and after the febrile symptoms which usually attend that disease, have been reduced by copious bleeding, &c.

It was in consequence of its apparent virtue in counteracting a protracted disease attended with emaciation, and all the characteristics of hectic fever, that Dr. Bourne, of Oxford, was induced to make trial of its efficacy in phthisis pulmonalis, and other affections rendered in some measure analogous to genuine pulmonary consumption, by the decided existence of hectic irritation. After a recital of the case above alluded to, Dr. Bourne, in his work, minutely details the symptoms and method of treatment in sixteen separate cases, which are arranged under four general heads. The first eight are supposed to be instances of “true pulmonary consumption in its first stage,” the ninth, tenth, and eleventh of this disorder in a confirmed state, attended with purulent expectoration; the two succeeding, some affections of the lungs attended with expectoration of pus, but which, nevertheless, were not genuine phthisis; and the three last were cases of hectic, in which the lungs appeared not to be primarily affected, or not at all. In the majority, however, of the above cases, the *uva-ursi* was not had recourse to without auxiliary combinations, and in some instances its employment was for a time entirely suspended. In the cases which are recited in the Appendix, the medicine appears to have received a fairer trial, and to have been attended with more decided effects. Extreme candour and moderation pervade the pages of Dr. Bourne’s work; and although our own experience of *uva-ursi* in pulmonary affections does not authorize an opinion independently of that formed by a perusal of this book, Mr. Davie, of Framlingham, Suffolk, has given cases of its decidedly curative powers; and there can be little doubt of its being capable of allaying irritability of system; for, according to experiments instituted on the pulse by Dr. Mitchell, of Philadelphia, the beats were sometimes, not always, slightly increased after taking it, but in every case they soon sunk below the natural standard, and remained so for some time.

Of the powder of the leaves of *uva-ursi*, from one to two scruples may be given to most patients; and of a decoction, made from half an ounce of the leaves, boiled for ten minutes in a pint of water, and a wine-glassful may be taken every hour.

The fruit of the *Arbutus Uredo*, taken in too great quantity, is said to be narcotic.



Xicia longiflora.

IXIA LONGIFLORA.—THE LONG FLOWER IXIA.

CLASS III. TRIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, GLADIOLÆ.

THE spatha (or sheaths,) which inclose the germen is oblong, permanent. The flowers, which are produced in July, have six petals which are equal; three awl-shaped stamina. The germen oval, three-cornered, situated below the flower, with a single style.

There are many species of *Ixia*, varying in colour; they have bulbous roots, and may be increased by their offsets; but they will not flower well if parted oftener than every third year. In the autumn the stalks and leaves decay; the roots should then be put under shelter for the winter, unless it is designed to remove them; in which case they may be treated in the same manner as the Hyacinth, and bulbs in general, and may be replanted any time between October and January. They may stand abroad in the summer, and should then have a little water every evening: they should be sparingly watered in the winter, when left in the earth. Pots three inches in diameter, and five in depth, will be large enough for these plants: the bulbs should be covered about an inch deep.

The Cape of Good Hope, which is so fertile in bulbous flowers, gives birth to a great variety of *Ixias*. Thunberg mentions two in particular: “The *Ixia bulbifera*, a bulbous plant, with a red flower, grew here in the greatest abundance. When one approached the place where it grew, it seemed to be but thinly scattered over the field, but at a distance, the ground appeared as if it were covered with scarlet cloth. . . . Here and here only was found, beside the brooks, a green variety of the *Ixia maculata*, another tall bulbous plant, which is as elegant as singular, with its long cluster of green flowers, growing out like an ear of corn, and is extremely scarce all over the world.”

There is scarcely any situation, unfavourable to vegetation, where plants and flowers are not occasionally found. On one of the highest points in Europe, upwards of eight thousand feet above the level of the sea, at the foot of the Grand Jorasse, far up the stupendous glacier of the Mer de Glace, is a verdant garden, surrounded with snows that never melt. It is called Le Jardin, and is covered with Alpine plants, and a luxuriant herbage in quest of which the Swiss peasantry drive their cattle, at certain seasons of the year, over the icy sea.

Mr. Raffles mentions several instances of a similar description in his elegant and animated “Tour to the Glaciers of Savoy.” In speaking of the vale of Chamouny, he notices the striking appearance of meadows surrounded by woods of unchanging verdure, and ice that never melts. This beautiful valley afforded a grand and imposing spectacle; it was eighteen miles in length, and about one in breadth, environed by mountains of appalling height, and presenting an endless variety of grand and terrific forms. Bare and rugged rocks were every where discoverable, the peaks of which, covered with snowy mantles, seemed to prop the heavens, and to forbid the daring footsteps of man, while from their sides and their brows were rolled down vast accumulations of ice, to blend their fantastic shapes and mingling hues with the softer scenery below; and, in the midst of all, the life and business of husbandry and pasturage, proceeded at an elevation of more than three thousand feet above the level of the sea.

The ocean has also its peculiar flora; “Millions of plants,” says an elegant writer, “form shades to innumerable fishes, that never quit their native beds; all of which speak a language far more emphatic than the thunders of the Vatican. They have their mountains and their vallies, their plains, recesses, and coves, in which to strike root: inhabitants to wonder at their calyxes, petals, and corollas, and to feed upon their redundancies.” In the Red Sea, and upon the coasts of Patagonia, as well as in the Atlantic, these plants rise from the bottom of the sea to the top; and are so numerous in some places as to interrupt the sailing of the largest ships.

Neither the extremes of heat nor cold are able entirely to impede the progress of vegetation. Lichens have been discovered near the margin of sulphureous volcanoes, and even on the icebergs of the Polar regions.

Plants have also been found growing on animal productions, which resemble in their construction those of the genus *clavaria*, the stalks and branches being generally terminated by tubercles, or little clubs. One

of this description is often found on the chrysalis of the cicada, sometimes even on the cicada itself. The root of the plant in general covers the body of the insect, and occasionally extends over its head. When these singular productions have been for some time preserved in spirits, the plant and chrysalis may be readily separated from each other.

The vegetable fly of the Caribbee islands is of a similar description. It was formerly supposed to be entirely an animal production, and that in the latter end of May the insect, resembling a drone in colour and appearance, buried itself in the earth, from whence it rose again in a vegetable form.

Dr. Hill having carefully examined several vegetable flies, ascertained the incorrectness of this opinion, and has thus stated the result of his investigation. The cicada is common to Martinique, and in its state of a nymph, in which the old authors call it *lettigometra*, it buries itself under dead leaves to wait its change; and when the season is unfavourable, many perish. The seeds of the *clavaria* find a proper bed in the body or chrysalis of the insect, and soon begin to germinate, whence the untaught inhabitants conjectured that the fly itself sprang up into a little tree, and some naturalists have figured the cicada flying with a trefoliate plant upon its back.

A variety of interesting plants of various descriptions are peculiar to bog-soil, and will not grow in any other. One of the most elegant of these is the *Andromeda polifolia*, or marsh-cistus. It is found in the north of England, and grows profusely in the marshy grounds of Lapland, which it decorates in the most agreeable manner. The flowers are blood-red before they expand, but when full grown the corollas are of a flesh-colour. It would be scarcely possible for any painter's art to imitate the lovely hue of this captivating little flower. When Linnæus observed it in the marshy lands of Lapland, he could not help comparing it to Andromeda, as described by the poets; and the more he considered their descriptions, the more applicable they appeared; so much so, indeed, that had the antient poets been acquainted with the marsh-cistus, they could scarcely have contrived a more apposite fable. The plant is always found on some little turfy hillock, in the midst of swamps, as Andromeda herself was chained to a rock in the sea, which bathed her feet, as the fresh water does the roots of the cistus. Dragons and venomous serpents surrounded her, as toads and other reptiles the abode of her vegetable prototype, and throw mud and water over its leaves and branches. As Andromeda cast down her blushing head through excessive affliction, so does the rosy-coloured flower hang its head, growing paler and paler till it withers away. At length Perseus, in the shape of summer, dries up the surrounding water, and destroys the monsters, restoring the damsel to liberty who then carries her head (the capsule) erect.

Many of our native plants appear independant of soil and situation, and are apparently endowed with instinctive motions, by means of which they are enabled to obviate every local inconvenience. The *bryonia dioica*, or red-berried bryony, which so often wanders over stony banks, and forms a beautiful drapery of lively green, gracefully diversified with small yellowish white flowers, is furnished with voluble stems, and twines round other plants from east to south-west. This is also invariably the case with the *humulus lupulus*, or common hop; the *lonicia periclymenum*, or common honeysuckle; the *tamus communis*, or lady-seal, and many others; whilst different kinds of creeping plants, such as the *convolvulus arvensis*, and *sepium*, or small and great bindweed; *phaseolus*, or kidney bean, &c., turn their spiral stems from west to south-east.

The branches of the honeysuckle shoot longitudinally, till they become unable to bear their own weight, and then strengthen themselves by changing into a spiral form. When they meet with other living branches of the same kind, they coalesce for mutual support, and one spiral turns to the right and the other to the left; thus seeking, by an instinctive impulse, some object on which to climb, and increasing the probability of finding one by the diversity of their course; for if the auxiliary branch be dead, the other uniformly winds itself round from right to left.

The seeds of the *cuscuta Europæa*, or greater dodder, open when ripe, and put forth a little spiral, which does not seek the earth to take root, but climbs up other plants, from which, by means of vessels, it draws its nourishment. When sown in a pot the dodder produces seeds, but the plants invariably die, unless they can attach themselves to something else. As soon as the roots have twined round an adjoining plant, they send out from their inner surface a number of little vesicles or papillæ, which fix themselves to the bark or rind. By degrees the longitudinal vessels of the stalk, which appear to have accompanied the vessels, shoot forth from their extremities, and make their way into the foster-plant, by dividing the vessels and insinuating themselves into the tenderest part of the stalk, in so intimate a manner as to be united with it.

Thus throughout the vegetable world a perfect system of mutual dependence every where subsists. The strong assist the weak, and the helpless plant which is unable to support itself, never seeks, without obtaining, the assistance of the great and powerful. What a beautiful and important lesson for the human race!



Convolvulus Scammonia.

CONVOLVULUS SCAMMONIA.—SYRIAN BINDWEED, OR SCAMMONY.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, CONVULVULACEÆ.—THE BINDWEED TRIBE.

Fig. (a) represents the corolla removed to show the stamens; (b) the germen and style.

THIS species, which amongst all the generic mutations that have been made still remains a convolvulus, much resembles our great Bindweed (*C. sepium*), it is a native of Turkey, Syria, Greece, Persia, and Cochinchina. According to Dr. Russell, it grows in abundance on the mountains between Aleppo and Latachea, from whence the greater part of the Scammony of commerce is obtained. It is a perennial plant, and is reported to have been cultivated in England by Gerard in 1597.

The root is fleshy, tapering, from three to four feet in length, and from three to four inches in diameter, covered with a light grey bark, branched at the lower part, and abounding with a milky juice. It sends up several slender, cylindrical, somewhat villous stems, which entwine themselves round the plants in their neighbourhood, or spread themselves on the ground, and frequently extend to the length of fifteen or twenty feet. The leaves are arrow-shaped, alternate, smooth, pointed, of a bright green colour, with a tooth on the inner side of each, and supported on long pedicels. The flowers grow upon slender erect stems, of about six inches long, divided near the top into two small pedicles, an inch or two in length, each supporting a yellow bell-shaped flower, with its margin turned outwards and undivided. These flowers begin to be sent off from the stalk within about two feet from the root, and so continue through the whole length of the plant. The segments of the calyx are emarginate; bractæ awl-shaped, spreading remote from the flower. The form and structure of the other parts of the flower do not differ materially from the other species of convolvulus. The capsule is two-celled, containing two small pyramidal seeds.

MEDICAL PROPERTIES AND USES.—Scammony was employed as a drastic purgative by Hippocrates and other Greek physicians; and although Ætius, Mesue, and many of the Arabians, aver that it ought never to be used, Rhazes appears to have formed an opinion in accordance with what modern experience teaches: he allows it to be taken cautiously, and adds, “*bilem rubeam vehementer expellit.*” Those of the ancients who did employ it, prescribed it for gout, rheumatism, and many other chronic diseases; and they were also in the habit of ordering an acetous decoction of it to be mixed with meal, and applied in the form of a poultice to painful affections of the joints. Celsus expressly recommends it for worms, and practitioners of the present day frequently adopt his advice. Van Swieten ordered it to be given some hours before the accession of a fit of the ague; and it was supposed to change, or modify the particular disposition that led to the paroxysm, by the action that it excited; but it is a violent and unjustifiable method, and now very properly forgotten. Scammony is considered to be a valuable drastic purgative in cases of dropsy, torpor of the intestinal canal, hypochondriasis and mania; and when aloes produce unpleasant effects on the hæmorrhoidal vessels, it may generally be substituted with advantage; but it sometimes excites the intestinal canal too violently, the ancients, aware of this, attempted to modify its action by sulphur; while the moderns employ sugar, gum, or almonds; or what is preferable, combine it with other purgatives.

Scammony is an important article in the materia medica of *empirics*; and a combination of scammony, cream of tartar, and antimony, being recommended by Robert Dudley, Earl of Warwick, to Marcus Cornachinus, of Pisa, the latter wrote a work in favour of it, which passed through several editions; by which means its virtues became so notorious, that in France it is called *Poudre Cornachine*, *Poudre des Tribus*, or *Poudre des Trois Diables*.

DOSE.—Scammony may be given in doses of from five to ten grains; but in smaller quantities when combined with other cathartics.

OFF. PREP.—Confect Scammonæ, *L. D.*

Pulv. Scammonæ Comp. *L. E.*

Pulv. Sennæ Comp. *L.*

Extractum Colocynthis Comp. *L. D.*

Scammony (says Dr. Russell) grows naturally on all that chain of mountains which extend from Antioch to Mount Lebanon, and on that part of Mount Taurus which is near to Maraash. I have also seen it in the plains between Latachia and Tripoly Syria, wherever there was any cover for it from the intense heat. From these places it is chiefly collected and brought to Aleppo; but as I have also seen some plants of it on the Mountain Amanus, I imagine it might probably be found on most of the hills in Syria, that produce any verdure; but the plundering disposition of the inhabitants renders it very unsafe to venture amongst them in search of it. The time of collecting the scammony is in the beginning of June. The people employed in it are only a few peasants, who travel over the country on purpose at that season. For as the plant grows entirely without culture, the scammony is the property of any person who will be at the pains to collect it. In many villages, about which it grows in the greatest plenty, the peasants either do not know it, or are unwilling to take the trouble of gathering it. The method of collecting it is this:—having cleared away the earth from the upper part of the root, they cut off the top in an oblique direction, about two inches below where

the stalks spring from it. Under the most depending part of the slope they fix a shell, or some other convenient receptacle, into which the milky juice generally flows. It is left then about twelve hours, which time is sufficient for the drawing off the whole juice; this however is in small quantity, each root affording but a very few drams. This milky juice from the several roots is put together, often into the leg of an old boot, for want of some more proper vessel, when in a little time it grows hard, and is the genuine scammony. It is the root only that produces this concrete; for the stalks and leaves near the root even when pressed, afford no signs of a milky juice; though, at the superior extremity of the plant, the leaves and stalks, when strongly pressed, do emit a very thin milky liquor: yet both the quantity is inconsiderable, and, according to the best observation I could make, the quality of it is different; for neither stalks, leaves, flowers, nor seeds, seem to have any purgative quality. Of this entirely pure scammony, but very little is brought to market, the greatest part of what is to be met with, being adulterated, if not by those who gather it, by those who buy it of them abroad; for the chief part of what is brought hither, passes through the hands of a few people chiefly Jews, who make it their business to go to the villages of any note, near which the scammony is collected; as Antioch, Shogre, Elib, Maraash, &c. and then buying it while it is yet soft, they have an opportunity of mixing it with such other things as suit their purpose best; as wheat-flour, ashes, or fine sand, all of which I have found it mixed with; but there seems to be some other ingredient (possibly the expressed juice) which makes it so very hard and indissolvable, that I have not been able to discover it to my satisfaction.

QUALITIES AND CHEMICAL PROPERTIES.—"Pure scammony is light, shining when broke, and crumbles with the least force when rubbed between the fingers. If a wetted finger but touches it, it turns immediately milky; and if broke and put into a glass of water, it soon dissolves into a milky liquor of a greenish cast; which, though it lets fall a small sediment after a little time, yet the liquor still retains its milky colour. The colour of scammony seems to be a mark of little consequence, for it is seen of all degrees, from almost jet black to a yellowish white, and all equally good in every respect upon trial; but though it differs so much in colour when in large pieces, yet all good scammony, when powdered, is nearly of the same colour, a brownish white. Those who gather it assert, that the difference of colour proceeds from the different methods of drying it; alleging, that what is dried in the sun will differ widely from what is dried in the shade." (*Russell*.) This description applies only to what is known in the markets by the name of Aleppo Scammony; but another sort brought from Smyrna is said to be the produce of the *Periploca Scammonia*.

Smyrna Scammony is in compact ponderous masses of a black colour, harder, and of a stronger smell and taste than the other kind, and full of impurities. The smell of scammony is peculiar and nauseous, its taste is bitter, and acrid; with water it forms a greenish coloured opaque liquid. Alcohol dissolves the greatest part of it. Its specific gravity is 1.235.

Vogel and Bouillon La Grange have analysed the two varieties as follows:—

ALEPPO.					SMYRNA.				
Resin	60	Resin	29						
Gum	3	Gum	8						
Extractive	2	Extractive	5						
Vegetable debris, earth, &c. ..	35	Vegetable debris, &c. ..	58						
	100		100						

Mr. Gate, of Princes Street, Soho, who lived at a large wholesale druggist's in the city, has favoured us with the following receipt for a spurious kind of Scammony, with which the market is supplied by unprincipled men:—

Take of Gum Scammony, six pounds.
Gum Arabic, six pounds
Calomel, two ounces.
Aleppo Scammony, one pound.
Ivory Black, *q. s.*

The whole, after being powdered, is formed into a mass by the addition of water.

Dr. Taylor remarks (*Poisons*, p. 522) "that Scammony, which is much used in medicine, is capable of producing, in large doses, great irritation of the alimentary canal. The medicinal dose is from ten to twenty grains: in larger doses its principal effect is to produce hypercatharsis, and to operate injuriously like gamboge and jalap, although it is considered not to be so energetic as either of these substances.

"**ANALYSIS.**—Scammony is usually seen under the form of a dark grey powder. Nitric acid turns it immediately brown. Sulphuric acid carbonizes it on contact. Iodine-water acquires with it slowly a deep purple colour. Potash dissolves it in part, and acquires a deep greenish-brown colour. A solution of green sulphate of iron produces with it no marked change; a solution of persulphate is slowly darkened. When heated on platina, it takes fire and burns with a smoky flame, leaving a grey alkaline ash.

"*Ipecacuanha* is not very likely to be mistaken for scammony; nevertheless it will be proper to state the results of some experiments on this powdered root. *Ipecacuanha* in powder has a fawn-brown colour: by strong nitric acid it is turned of a rich green colour, passing speedily to brown. Sulphuric acid carbonizes it on contact. Iodine-water gives to it a deep blue colour. Potash has no immediate effect, but the liquid becomes slowly brown. A solution of green sulphate of iron produces slowly in the mixture a deep greenish colour: the persulphate is speedily darkened. When heated on platina it burns without melting, and leaves a white ash. *Contrajerva* powder strikes a blue colour with strong nitric acid, before passing to a brown."



Ferula Asafoetida

FERULA ASSAFÆTIDA.—ASSAFÆTIDA.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Fig. (a) and (b) the seed; (c) the corolla, magnified.

THIS species of *Ferula* is a native of the south of Persia, growing on the mountains in the provinces of Chorasaa and Laar, where it is named *Hingisch*. The following description we copy from Kaempfer, who saw the plant growing during his travels in Asia.

“The root is perennial, tapering, ponderous, and attains the size of a man’s arm or leg, covered with blackish coloured bark, and near the top beset with many strong rigid fibres; the internal substance is white, fleshy, and abounds with a thick, foetid, milky juice; the stalk is simple, erect, straight, round, smooth, striated, herbaceous, about six or seven inches in circumference at the base, and rises to the height of two or three yards; the radical leaves are six or seven, nearly two feet long, bipinnate; the pinnae are alternate, variously sinuated, lobed or lanceolate, smooth, of a deep green colour, and foetid smell; the umbels are compound, plano-convex, terminal, and consist of many radii; the seeds are oval, flat, foliaceous, of a reddish brown colour, rough, marked with three longitudinal lines, have a porraceous smell, and a sharp bitter taste.

This plant is said to vary according to the situation and soil in which it grows, not only in the shape of the leaves, but in the nauseous quality of the juice with which they are impregnated, sometimes becoming so mild as to be eaten by the goats. The gum resin known in commerce under the name of Assafœtida, is the concrete juice of the root of this plant. When the plants are about four years old, the roots are sufficiently vigorous to yield the Assafœtida. In the provinces of Chorasaa it is procured in the following manner:—at the season when the leaves begin to decay, the oldest and most vigorous plants are selected, the earth from the upper part of the root is cleared away, the stem and leaves twisted off; it is then left in this state for forty days, being previously screened from the sun by covering it over with the decayed leaves: at the expiration of this time the covering is removed, and the top of the root cut off transversely, and left for forty-eight hours for the juice to exude, when it is scraped off by a proper instrument, and exposed to the sun to harden. This operation is repeated three times, after which the root is again covered up, and suffered to remain for eight or ten days, when it is again uncovered and another transverse section is made as before. In this way the Assafœtida is collected eight times, when the root becomes exhausted of its juice, and soon after perishes. The collecting of the Assafœtida is performed by the peasants who live in the neighbourhood of the mountains; the juice from a number of roots is collected at the same time, put together, and exposed to the sun to harden.

SENSIBLE AND CHEMICAL PROPERTIES. Assafœtida comes to market in large irregular masses of a heterogeneous appearance, composed of various shining little lumps or grains, some of which are white, others of a brown or reddish colour, and some of a violet hue. Those masses are esteemed the best which are clear, of a pale reddish colour, and variegated with a great number of fine white tears. Assafœtida has a strong, fetid, and to most persons, a disagreeable odour, and a bitter, subacid taste; it becomes brittle by exposure to the air, but is not readily reduced to powder. It is composed chiefly of gum, resin, and essential oil, the latter of which is obtained by distillation, either with water or alcohol. Its odour and taste reside in the resin and oil, which are readily dissolved by ether and alcohol; hence the alcoholic and ethereal tinctures combine the virtues of this drug, the former dissolving three parts out of four. By trituration with water Assafœtida forms an opaque milky solution, about 60 per cent. being readily dissolved, which is chiefly extractive matter.

